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PNEUMOGRAPHY BY LIPIODOL. ITS PRESENT USES AND LIMITATIONS*

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THE principal reason that stimulated us in the production of this paper has been the frequent publications all over the country of so-called "simplified methods" of using lipiodol. We make the contention that there is no such a thing as a "simplified method" of using iodized oil if by its use we are going to obtain any really helpful information in obscure lung conditions, and we contend that it should only be used in obscure lung conditions when other diagnostic methods have failed. If we are going to be satisfied with the beautiful X-ray pictures of so-called bronchiectasis, which can be produced by almost any method of using the oil, then simplified methods may be used. The term bronchiectasis is very loosely used and it is surprising to see the difference of opinion among medical authorities about this condition. For example, Lord, in his text book, states that it is very uncommon and extremely difficult to diagnose. Osler, on the other hand, states that it is usually easy of diagnosis. If Lord is right, then lipiodol is a valuable aid in diagnosing this condition. The very small percentage of lungs showing bronchiectasis in post-mortem cases inclines us to the belief that it is uncommon and that the term is loosely applied to many suppurative lung conditions.

It may be that we are peculiarly situated at the Thoracic Clinic at the Massachusetts General Hospital, in the selection of our cases for pneumography. If we are, we consider ourselves fortunate. This clinic was organized a little over a year and a half ago, consisting of an internist and his assistants, a thoracic surgeon and his assistants, a bronchoscopist and his assistants, together with a roentgenologist. All

obscure pulmonary conditions, where it has not been possible to make a definite diagnosis, are referred to this group by the various medical and surgical services of the hospital. The patient, therefore, has previously had a thorough study in the wards of the hospital before he comes to the Thoracic Clinic for diagnosis. The question for this clinic to decide is (1) What is the patient's lesion? (2) Where is the lesion? (3) Is it a medical or surgical case? (4) What treatment is recommended? The entire group meets every Tuesday morning at 9:30 A. M. The patients, with their complete history, physical findings, X-rays, etc., are brought in, and those unable to leave their beds are visited in the ward. The history and physical findings are first gone over carefully, being read aloud to the group. The X-rays are then examined and discussed, and then the internist and his assistants make an examination of the patient's lungs. An open discussion of all the findings then goes on among the internist, the thoracic surgeon, the bronchoscopist, and the X-ray man. A decision is then reached as to whether bronchoscopy will be helpful in the individual case or not, and the question of lung mapping is left to the bronchoscopist's judgment. The result of this intensive study is that when the patient comes for bronchoscopy the bronchoscopist has all possible knowledge of the case that can be obtained beforehand. No person is bronchoscoped without having first gone through this group.

It is perfectly evident that when cases are so thoroughly studied beforehand, it is more of a problem to add to what is already known about them than it would be if they had not gone through this intensive preliminary study. By this method of selection of cases, we have avoided any such untoward complications and fatalities as were recently reported by Drs. Archibald

*Read by invitation before the American Bronchoscopic Society, Atlantic City, N. J., May 21, 1927.

Roentgenograms by Dr. A. S. Macmillan, Roentgenologist, Massachusetts Eye and Ear Infirmary.

and Brown¹ on the "Dangers of Introducing Iodized Oil into the Tracheo-Bronchial System." They report three fatalities from the literature following the use of lipiodol. The fatalities all occurred in tubercular patients or patients having acute lung conditions.

We do not bronchoscope tubercular patients, much less do we put lipiodol into such cases. Neither do we bronchoscope or use lipiodol in acute lung conditions unless it is absolutely necessary.

One of the most difficult things for us has been to be of material aid to the thoracic surgeon in deciding whether the case is favorable for surgery or not. We have tried various methods of using the oil and as yet are frank to admit that in our hands, at least, no technique has been developed that makes it of any great use in most lung abscess cases, and we are inclined to agree with Lord² when he states: "In our experience lipiodol has not proved of material assistance in the diagnosis of abscess. Abscess cavities usually communicate so imperfectly with the bronchi that the injected substance outlines the bronchi surrounding the abscess, leaving the involved region itself as a blank, and the diagnosis is then made by exclusion."

We have, however, come to the conclusion that no method of using iodized oil is a good one, unless, as a preliminary step, there is a thorough cleansing of the pus from the tracheo-bronchial tree.

One method which we used for a time because it seemed the logical one has been found to be misleading. This consisted in thoroughly cleaning out the main bronchus of the affected lung, then locating the terminal bronchus or bronchi from which the pus was seen to exude. This terminal bronchus was then also thoroughly cleaned out by suction and the heated oil, at body temperature to prevent reflex cough, was then introduced into this terminal bronchus, usually fifteen c.c. being used. We thought that in this way we were getting directly at the lesion and eliminating normal lung, but, unfortunately, we found that by doing this we could almost always produce what looked like a lung abscess by simply filling a lobule of lung with the oil and massing it in that region, there being in reality no real breaking down of lung tissue, but rather a super-imposing of lipiodol, possibly in dilated bronchi, giving the appearance often-

times of a large cavity. This area corresponds to what Jackson describes (in his text book) as follows: "The term 'abscess' is usually loosely applied to the condition of drowned lung in which pus has accumulated in natural passages and in which there is neither a new wall nor a breaking down of normal wall."

Furstenberg and Hickey³ have also called attention to this massing of the oil producing pulmonary opacities and leading to erroneous interpretations.

It is important to remember that pus exuding from a terminal bronchus does not necessarily mean gross pathology from that area. It may be a reservoir filled by gravity from a pathological area in the upper or middle lobe.

A patient in which such a picture was obtained by us was operated upon by the thoracic surgeon, and instead of finding an abscess, he found a number of small pockets which were superimposed and gave the appearance of one large cavity. This case gave us our first clue to the fallacy and led us to experiment on the lungs of dead and live dogs with the oil. The method we use I will quote from Mosher⁴.

"The intact lungs of a dead dog were inflated and kept in this condition. Through a window in the side of the trachea a bronchoscope was introduced, and through this the cannula for the lipiodol. A terminal bronchus of the right inferior lobe was injected. The oil was carried by gravity also to the left upper lobe. Typical pictures of lung abscesses were obtained in both places. An attempt was made to evacuate the lipiodol from one of the injected areas. Watching the attempt through the fluoroscope showed that this could not be done. Even after the main bronchus to the injected area was slit open, pressure would not clear the lung of the oil. The same experiment was tried on a living dog, minus, of course, actual pressure on the injected area, with the same result.

"These experiments proved that 40% lipiodol injected into the terminal bronchus of a normal lung will give the picture of a long abscess. In order not to draw false conclusions, therefore, weaker solutions of lipiodol must be used. Experiments are now being carried on to determine what strength of lipiodol must be used in order to avoid a misleading picture. It is felt that the oil, if it is to be of real service, must be introduced with a nebulizer, and experiments along this line have been started."

We have since tried spraying various dilutions of the oil in dogs but found that in order to get it to atomize it had to be diluted so much that it did not show readily in the picture.

Our present method consists of thorough cleansing by bronchoscopy of the bronchi and the terminals. The oil at body temperature is then placed in the main bronchus of the affected lung, about at the spot which best favors flowing by posture to the pathological area, as determined previously by physical finding and X-rays. The bronchoscope is then withdrawn and the patient placed in the most favorable position for getting the oil into the desired area. So far, by this or any other method, we have not shown lung abscesses, except in rare instances, only by exclusion, that is, by filling a normal lung about the abscess with the oil. We have found it almost impossible to obtain fluid levels of lipiodol in real lung abscesses, and this we believe to be due to the fact that the abscess is usually filled with pus and only draining out its excess of secretion or overflow. Most often the opening through which the abscess is draining is too far removed from the main bronchus to be reached by a bronchoscope.

To date only two of our lung abscesses communicated directly with a bronchus explorable with the bronchoscope.

Iglauer⁵ has also called attention to the difficulty of injecting lung abscess and feels, as we do, that the cavity is filled with secretion or has a very narrow connection with the bronchus.

Clerf⁶ states that lung abscesses are rarely seen bronchoscopically, but can be definitely localized by lung mapping. We do not quite understand what is meant by this statement unless he means that the abscesses are easily localized by exclusion, that is, mapping out the normal lung about them.

Tubercular cases, as we have already stated, were not bronchoscoped, and we have no doubt that the empty cavities in these cases could be easily filled and fluid levels obtained, as claimed by Ballon⁷.

So-called bronchiectasis can be easily demonstrated. Stenosis or partial stenosis of a bronchus, due to any cause whatsoever, can be demonstrated by the use of the oil, but in these cases we consider that bismuth subcarbonate powder is superior and gives a much better delineation of the stenosed area. We have given the oil by mouth in two cases of suspected tracheo-oeso-

phageal fistula. In those cases the fistula was demonstrated easily on the X-ray plate and there was no untoward effect from the patient having swallowed the oil.

In conclusion, we wish to state that in our opinion any case which is obscure enough to require pneumography as an aid in diagnosis, is also obscure enough to be entitled to diagnostic bronchoscopy, for the reason that we still believe diagnostic bronchoscopy to be of more importance than pneumography at the present time.

CONCLUSIONS

(1) In our experience simplified methods of using lipiodol are not of real diagnostic aid in obscure lung conditions. Thorough cleaning of bronchial tree as a preliminary we regard as essential.

(2) Real lung abscesses can usually be shown only by exclusion, that is, by mapping out the normal lung about them with lipiodol, the reason for this being that they are not empty cavities but are usually filled with secretion and only draining out their overflow, this outlet being in many cases far removed from a bronchus explorable with the bronchoscope.

(3) It is very easy, by injecting a terminal bronchus with lipiodol, to give the appearance of a lung abscess in the X-ray picture.

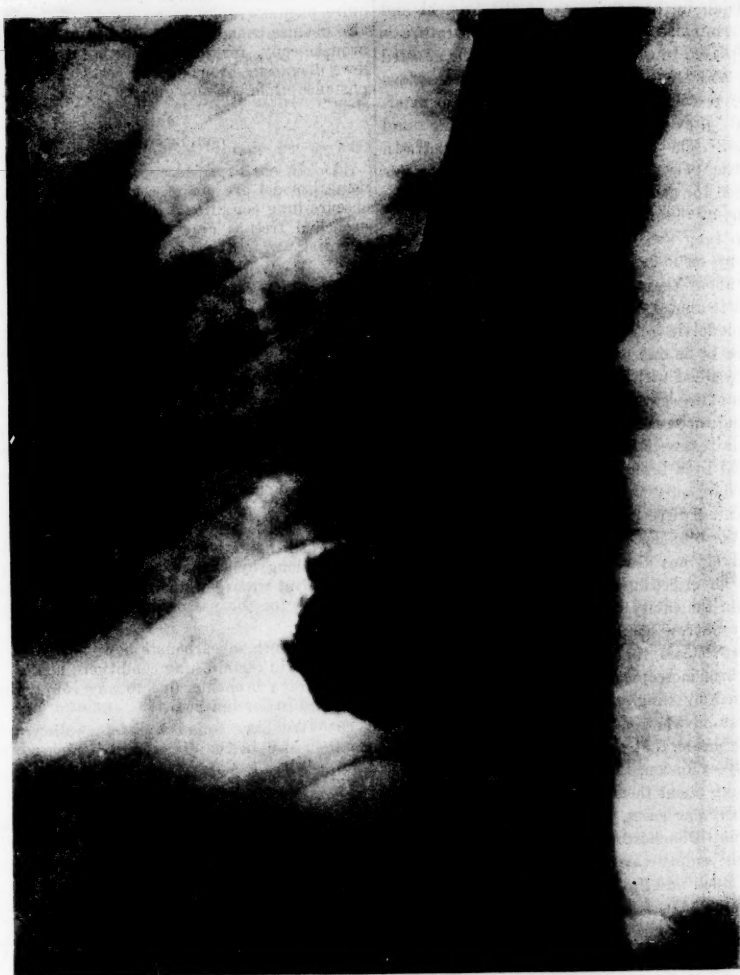
(4) Our best results so far have been by placing the lipiodol in the bronchus of the affected lung, at a location favoring its flow by gravity toward the pathological area, this flow being helped along by change of posture of the patients. But we are of the opinion that a better technique for the use of oil can still be developed.

(5) Bismuth subcarbonate powder is superior to lipiodol in certain lung conditions, notably in stenosis of a bronchus due to any cause whatever, and in foreign bodies.

(6) We have found lipiodol swallowed by mouth useful in the diagnosis of tracheo-bronchial fistula.

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- 3 A. C. Furstenberg and P. M. Hickey: "Demonstration of the Lower Air Passages by Intracheal Injection of Lipiodol." *Transactions of the American Laryngological, Rhinological and Otolaryngological Society*, 1926, page 4.
- 4 Harris P. Mosher: "Pulse Lung Abscess and Lipiodol." *The Laryngoscope*, February, 1927, Vol. XXXVII, No. 2, page 135.
- 5 Samuel Iglauer: "Use of Injected Iodized Oil in Roentgen-ray Diagnosis of Laryngeal, Tracheal and Bronchopulmonary Conditions." *Transactions of the Section on Laryngology, Otolaryngology and Rhinology of the American Medical Association*, 1926, page 17.
- 6 Louis H. Clerf: "Pneumography." *Transactions of the American Laryngological, Rhinological and Otolaryngological Society*, 1925, page 326.
- 7 David H. Ballon: "Lipiodol in the Diagnosis of Bronchopulmonary Lesions by the Bronchoscopic Method." *Archives of Otolaryngology*, May, 1926, Vol. 2, No. 2, page 403.





CASE 1. W. S. Age 14. Symptoms and physical findings were suggestive of a suppurative process at the right hilus. At bronchoscopy purulent secretion was found coming from the posterior terminal bronchus. After cleansing, by suction, 15 c.c. of lipiodol was injected for X-ray study.

The anterior-posterior view shows a massing of lipiodol in the right lower lobe, surrounded by normal lung.

The lateral view shows the mass of lipiodol posteriorly. This location did not correspond to the physical findings, and this case gave us our first clue to the erroneous interpretations due to massing of the lipiodol.

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CASE II. F. E. L. Age 19. Pre-bronchoscopic diagnosis, "lung abscess, left lower lobe." Tracheo-bronchial tree cleansed by suction and lipiodol instilled into the terminal bronchus from which pus was extruding. X-ray studies show a massing of the lipiodol, filling the lobule, producing what has been mistaken for a lung abscess.

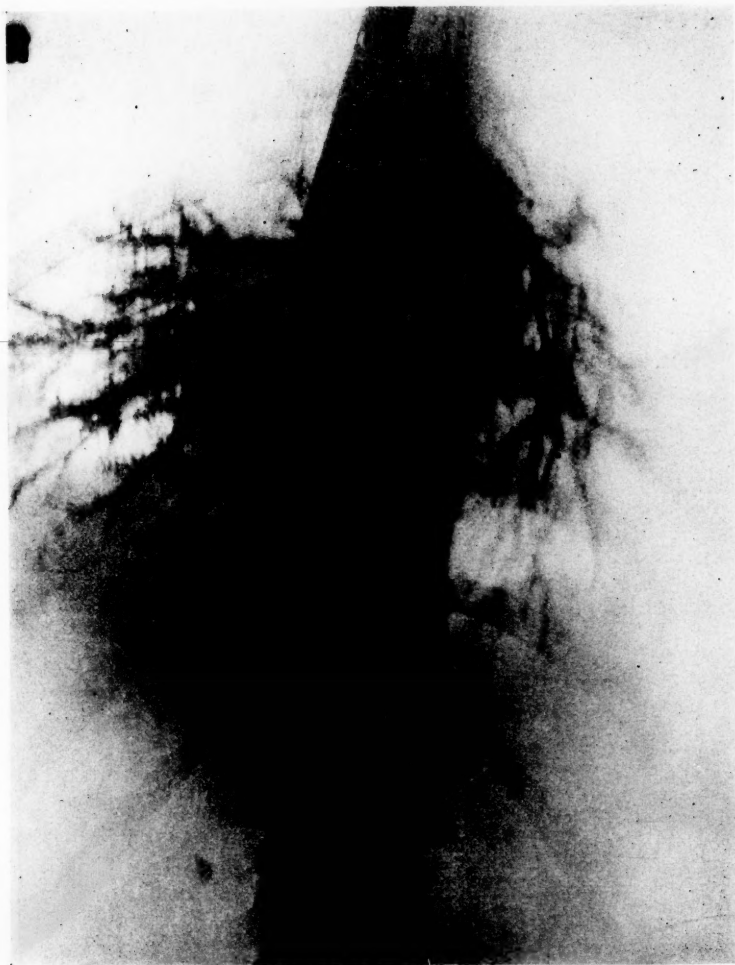
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CASE III. J. W. Age 38. Symptoms and physical signs of pulmonary abscess of the right upper lobe, following tooth extraction and infection of the lower jaw. Flat plates showed three fluid levels in the right upper lobe. The lipiodol failed to reach the cavities, but pneumography was of value, as the lateral plate shows the lesion to be all anterior.

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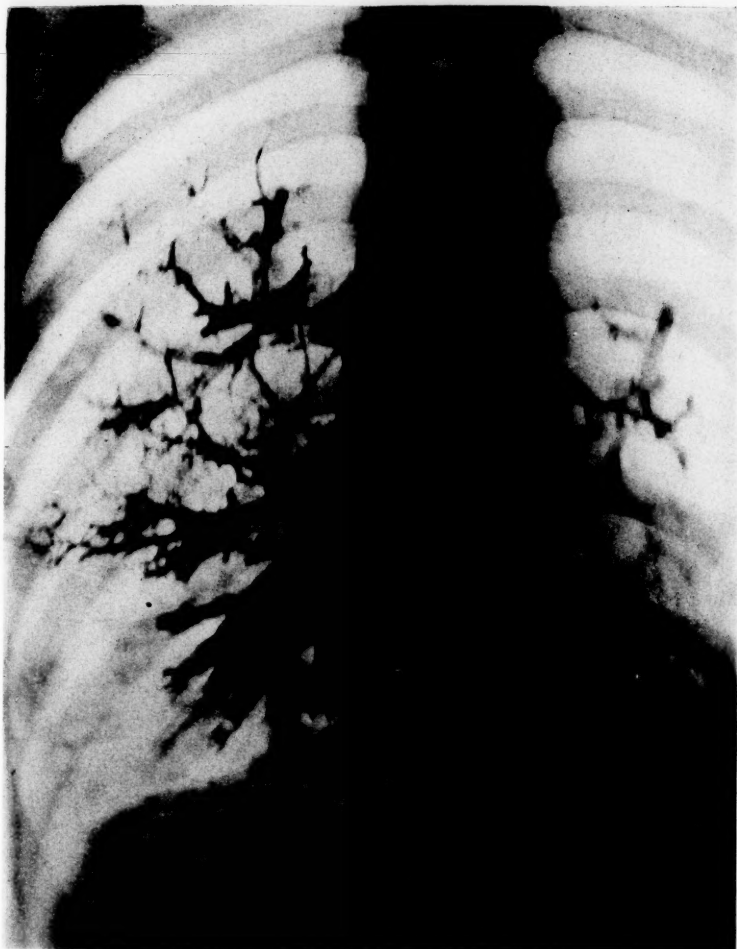
CASE IV. A. K. Age 22. Acute lung abscess following tonsillectomy. This abscess was located posteriorly at the right base, but communicated so imperfectly with the bronchus that bronchoscopic drainage could not be done. The lipiodol, however, did reach the abscess, giving the above picture. This was proven to be an abscess by autopsy.



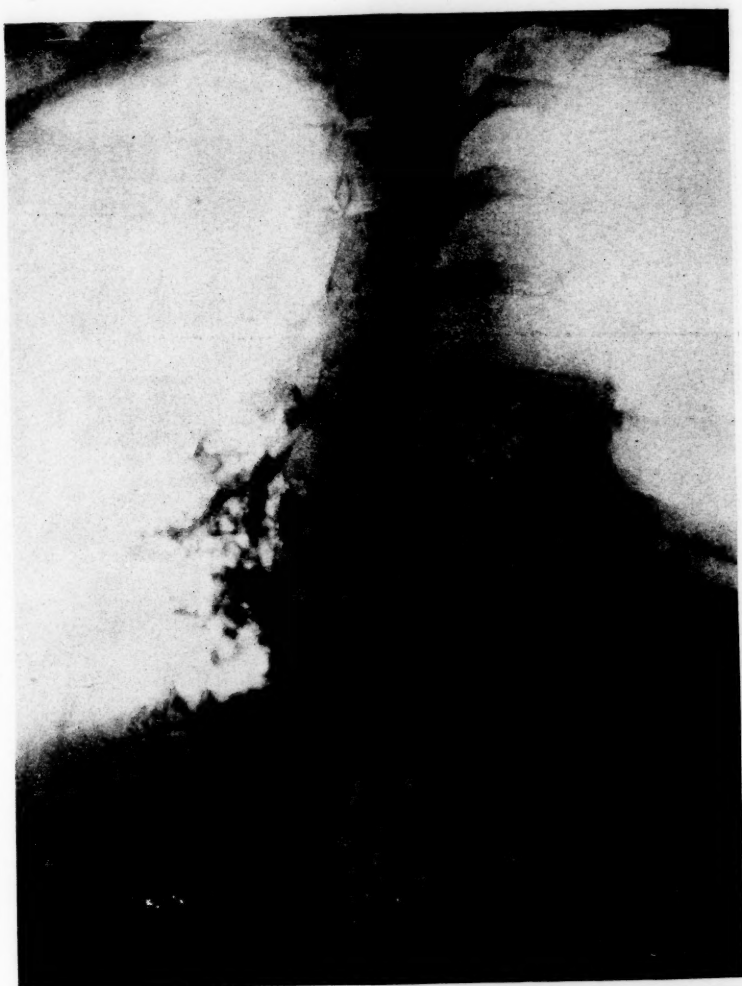
CASE V. F. J. Age 29. This case is a true abscess. During the bronchoscopy it ruptured, one wall probably being pleural. The patient recovered following rib resection.

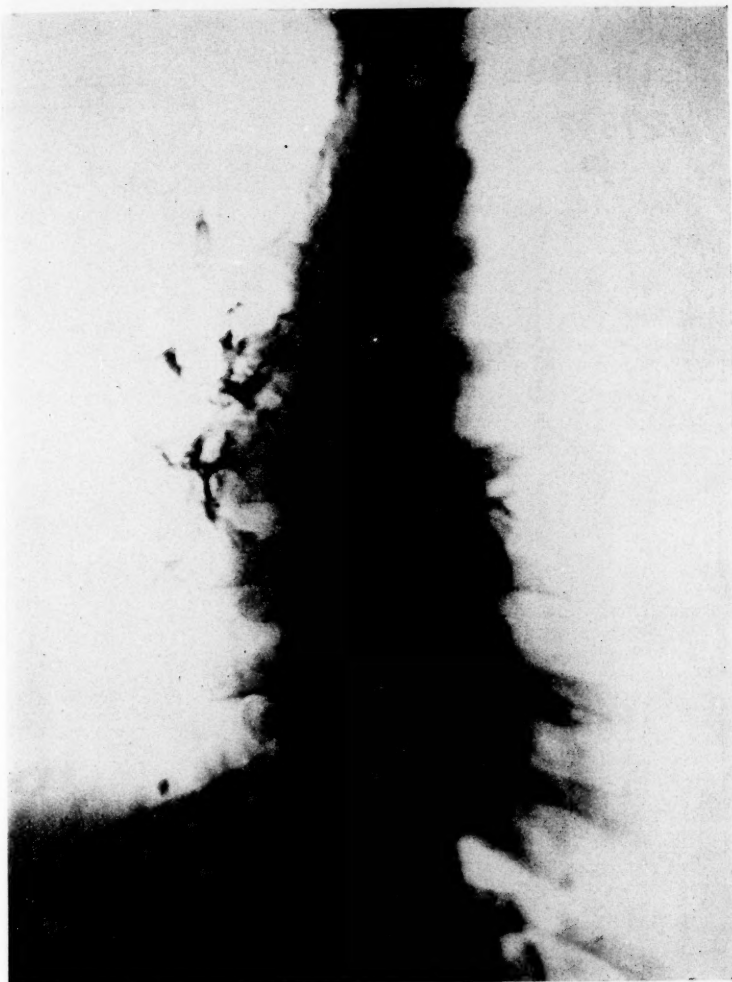


CASE VI. J. B. Age 16. History of cough with excessive amounts of purulent sputum. Pneumography by means of lipiodol shows bronchiectasis.



CASE VII. C. P. M. Age 16. History of cough with thick, purulent sputum for four years. Physical finding suggestive of either bronchiectasis or abscess. Bronchoscopy with pneumography shows bronchiectatic involvement of the right base.





CASE VIII. P. M. Age 20. Pneumography shows a unilateral bronchiectasis involving the left base. This patient was considered ideal for an artificial pneumothorax. Complete collapse of the left lung was obtained. The second pneumographic plate is after the collapse of the left lung.

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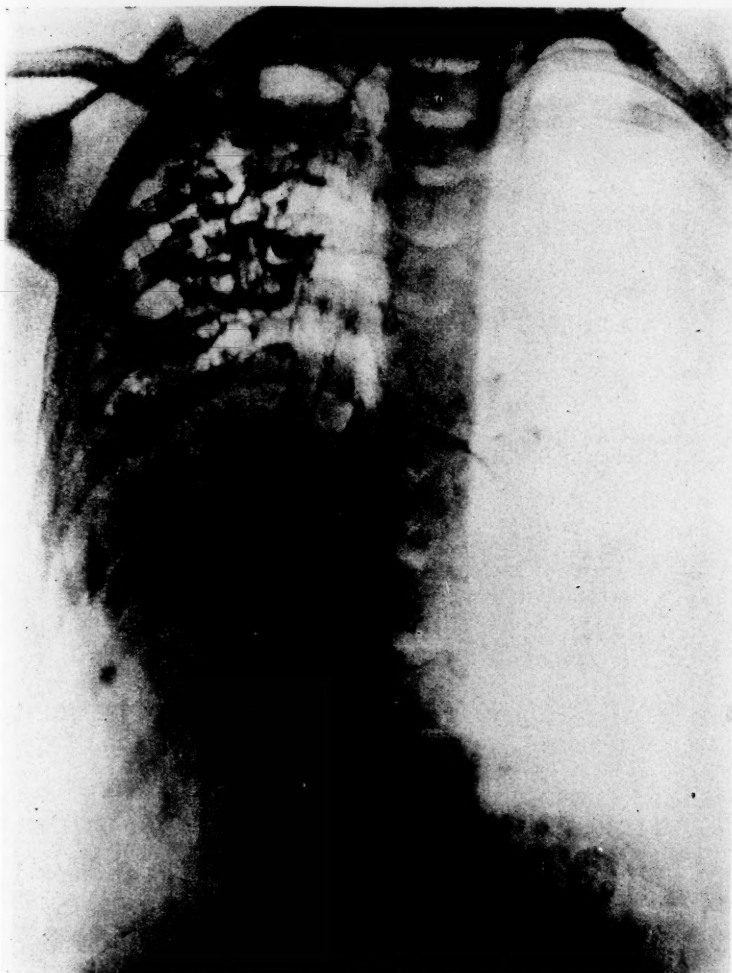


CASE IX. M. M. Age 26. History of a lung abscess eleven years ago. In 1917 had a thoracotomy done in two stages with temporary relief. X-ray plates showed no definite cavity, but a diffuse process with some changes in the root region and below it. Bronchoscopy with lipiodol shows bronchiectatic cavities in the right lower lobe.



CASE X. D. M. Age 35. Physical signs of a suppurative process of the right upper lobe. The chest plate showed three cavities with fluid levels. Even with the upper lobe curved cannula lipiodol did not reach the abscess cavities, evidently due to blocking of the bronchi.





CASE XI. T. J. Age 16. History of repeated attacks of pneumonia since infancy, with constant cough and foul, purulent sputum. Physical signs of pathology at the right base.
Pneumography shows bronchiectasis of the right base, and what was not suspected, multiple abscess cavities of the apex. Plates taken after coughing show the cavities partially filled, with fluid levels.

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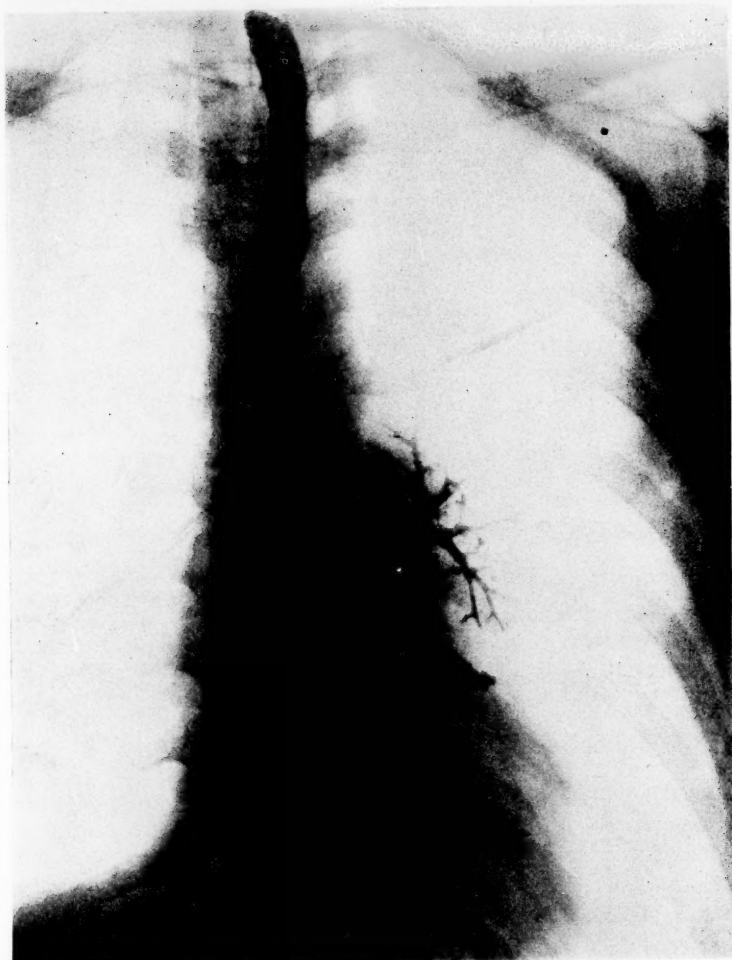


CASE XII. M. C. Age 46. History of a suppurative process with physical signs of involvement of the upper lobe. Lipiodol injection after bronchoscopic cleansing failed to reach the involved area.



CASE XIII. J. S. Age 48. History of cough with excessive amounts of sputum. Physical signs suggested an inflammatory process or neoplasm of the left base. Bronchoscopic examination revealed an incomplete stenosis of the left main stem bronchus. Lipiodol instilled beyond the stenosis and bismuth subcarbonate inflated at the stenosis, shows bronchiectasis of the base, with a stenosis of the left main stem bronchus.

At the second bronchoscopy, six months later, there was out-cropping into the lumen of the bronchus. A specimen was removed for microscopic examination and found to be carcinoma.



CASE XIV. R. F. Age 44. This patient gave a history of difficulty in swallowing semi-solid food for the past two years.
Ingestion of lipiodol shows a tracheo-esophageal fistula.

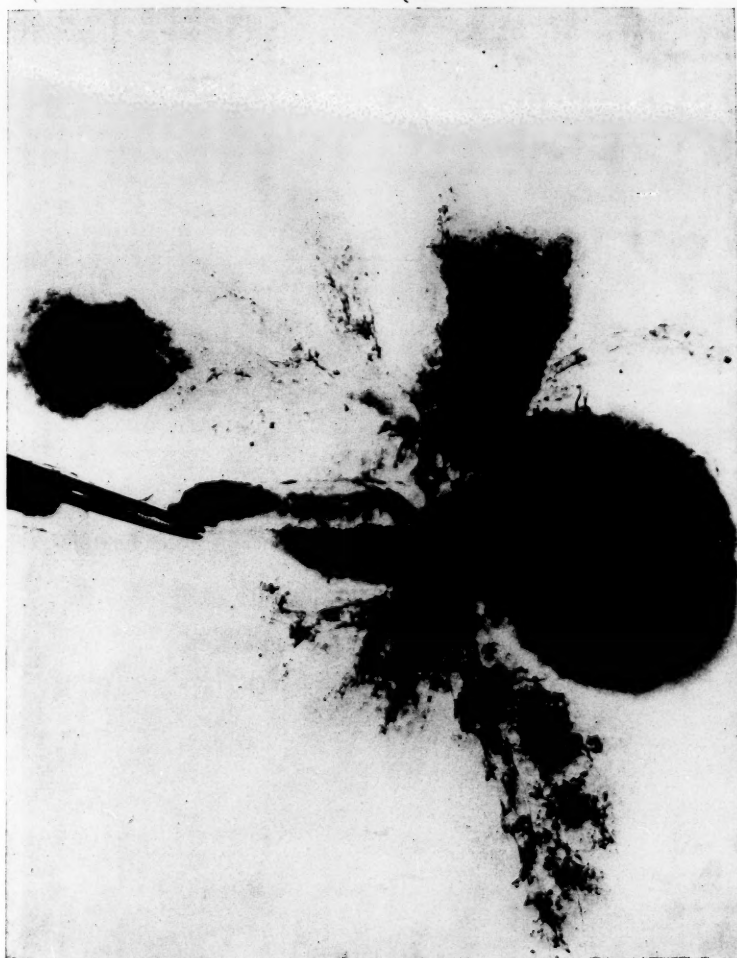


FIGURE III. To determine whether lipiodol would completely fill a lobule of lung to give an erroneous interpretation, the lungs of a dog were inflated and lipiodol injected through the bronchoscopes. This picture of massing of the lipiodol has been mistaken for an abscess.

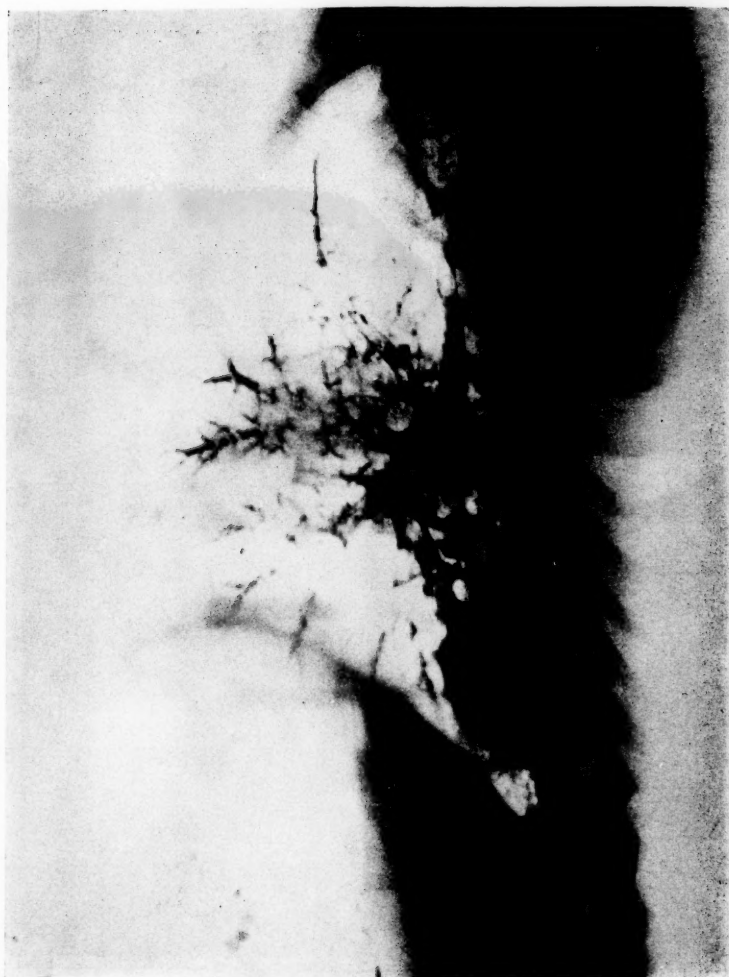




FIGURE IV. The experiment was likewise tried on living dogs. The lipiodol was injected through the bronchoscope with sufficient pressure only to carry it through the tip of the cannula. By gravity the lipiodol filled the lobule, giving the picture that has been mistaken for an abscess.

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A REPORT OF THE INFANTILE PARALYSIS EPIDEMIC IN HAVERHILL*

BY GEORGE T. LENNON

THE infantile paralysis epidemic that is now on the wane in Haverhill—the 14th week ending today as the weekly reports close Fridays so that they may be forwarded to the federal bureau—shows the highest maximum incidence of any epidemic with a rate of 2.2 per 1,000 population, the estimated census July 1st this year being 47,239.

That the previous maximum incidence of 1.8 of 1916 in New York and of 1925 in New Zealand and Iceland would be attained and probably exceeded was predicted by Dr. W. F. Aycock of the Harvard Infantile Paralysis Commission of Boston when he visited Haverhill during the ninth week of the epidemic.

Dr. Aycock, at that time, said without reservation that there would probably be at least 100 cases before the epidemic ended. His prediction was verified as today the Board of Health has 105 cases reported, 15 of which resulted fatally.

The Board of Health is indebted to Dr. Aycock and his assistant research workers Drs. Eliot F. Luther and Charles Cherry for their work as consultants, and also to Dr. Clarence Seaman, Director of the Division of Communicable Diseases of the State Health Department, for his cooperation.

Based upon the number of cases that have occurred and figuring that there are 4,000 children of pre-school age, it would appear from our records that one out of every 70 children had the disease, as there were 57 of the age group from six months to 5½ years with seven cases resulting fatally.

There were 45 cases in which the ages ranged from 5½ to 16 years. The estimated number of children of school age is 12,000, so that carrying the comparison along, it would appear that one out of every 265 children of school age was afflicted and eight of the 45 died.

The records of the Board of Health show that previous to this year, there had been 172 cases of infantile paralysis in Haverhill, and of that number 29 died. This number of cases covers the past 17 years, infantile paralysis having been made a reportable disease in Massachusetts in the latter part of 1909.

The previous largest number of cases in any one year was in 1917, when 39 with two deaths, were reported. That you will probably recall was the year following the state-wide epidemic when 1926 cases were reported. The state reports show that up to this week 908 cases have occurred this year, so that Haverhill has had nearly 10 per cent. of the total cases reported.†

Ipswich, a town about 14 miles from Haverhill, has a population of 6,050 by the last census. Up to the time of writing twenty-five cases have

been reported from that town. It will be readily seen that Ipswich has a case rate of 400 and an incidence of 4 per 1,000 population. This exceeds Haverhill's incidence rate and is as of today, the highest maximum incidence ever known.

Haverhill only had 12 cases and three deaths in the state-wide epidemic of 1926. The 1927 record of Haverhill exceeded that of 1913 when 22 cases with three deaths occurred. In 1914 there were 16 cases with one death. These 38 cases of 1913-1914 have a rather suggestive comparison, as in 1920 there were 25 cases and 9 deaths, and in 1921 19 cases and 2 deaths.

There was one year in the past 17 in which no cases occurred. That was 1919. The fact that 133 of the 171 cases reported in the past 17 years occurred in cycle years of 1913-1914, 1916-1917 and 1920-1921, has interested many health officials and research workers who have visited Haverhill during the recent unusual prevalence of the disease.

The cases that occurred previous to this year since 1910 have been reviewed as far as the geographical incidence in Haverhill is concerned. This review disclosed that 42 or about 25 per cent. of the 171 afflicted lived in the Ward 5 section of the city, the other cases being scattered.

The 1917 records show that about 70 per cent. of the 39 cases occurred in Ward 5 with that outbreak lasting from June 23rd until September 10th. The recent epidemic shows that 60 of the 104 cases occurred in Ward 5 where the first case was reported on July 27th. And a peculiar coincidence is that 39 of those 60 patients were of French ancestry. This may only be a coincidence although it is possible that children of that nationality may have been more susceptible to the disease this year than others. No reflection on the 7000 French-Canadian residents is intended by any reference to them.

Twelve of the 15 deaths also occurred in Ward 5 and the coincidence continues in that all 12 were children of French-Canadian descent. One of the two deaths in Ward 6 was also of French ancestry, the other being of American nationality as was the 15th fatal case, which, by the way, was the only case that occurred in Ward 2. The deaths by ages were:—one 10 months, one 2 years, three 4 years, two 5 years, two 7 years, four 8 years, two 16 years. The illness of these 15 cases varied before death from three to twelve days, two being ill 10 days, five 4 days, one 8 days, three 5 days, four 3 days. The 10 months fatal case was eight days, and the two oldest cases of 16 years the only cases of that age occurring, were ill 10 and 6 days, the latter being about all the time. He was found unable to talk one morning and died within 24 hours. The duration of illness before death as in all the cases, is reckoned without considering the day of onset.

*Read at the meeting of the Massachusetts Association of Boards of Health, October 28, 1927.

†The total number of cases has increased since this paper was written. The statistics may have to be modified because of the additional cases since reported.

There were two cases in Ward 1, two in Ward 3, nine in Ward 4, nineteen in Ward 6, and eleven in Ward 7. Twenty cases had occurred in Ward 5 before any case was reported from other sections of the city, the 21st case, that of a two year old child whose mother insisted had not been away from home for six weeks, being reported just a month after the first case was known.

Four of the first 20 cases resulted fatally, all being of the respiratory type and one with the diaphragm involved. The nationality coincidence to which reference has been made, was typical in the first 20 cases in Ward 5 as 16 were of French-Canadian descent.

It is generally admitted by physicians that in previous years, no diagnosis of infantile paralysis was definitely made until the third day after the day of onset and it is doubtful whether any physician could have, with the systemic symptoms that are typical of childhood illness, made a positive diagnosis in the pre-paralytic stage.

The official records as far as reported cases are concerned show that there were only two cases in the first two weeks of the epidemic. The case histories, that have always been obtained for the major reportable diseases, however, disclose that as far as onset is involved, there were actually 9 cases existing in those first two weeks, two of which later resulted fatally and were really the first fatal cases.

The first death from polio was reported 20 days after the first case was reported and meanwhile two other deaths certified as tubercular meningitis with the diagnosis later revoked, had occurred. The onset of the second death was on August 1st, the child dying 12 days later while the first actual death occurred August 9th after the child had been ill five days. These deaths are listed as cases 18 and 64.

Paralysis had already set in the first 33 cases reported and of that number seven died, every one of these having been of the respiratory type. The 34th case was reported within 24 hours of onset and it was in that case that a lumbar puncture was made to confirm the diagnosis. The convalescent blood serum used by the Harvard Infantile Paralysis research workers was administered to this patient, this being one of the 24 cases in which the serum was used.

Drs. Aycock, Luther, and Cherry were only hopeful that the use of this blood serum might prove to be a prophylactic in averting paralysis in cases found within 24 hours of onset. Two of the 24 children were only given one inoculation as paralysis had set in when they started to give the second dose, and one of these two died.

The case history obtained after the death of this child disclosed that the onset was gradual, the patient having first been ill three days before what was given as the actual onset of her disease, and for two days had been about everywhere apparently normal. As a matter of fact

another case was found to have been a contact with that case.

Another death occurred in a case where two inoculations were given but the first dosage was small as the supply of blood serum had run out. In this death, the case history revealed that the child who had been restrained to her home and yard, had been in contact five days before her death to what was supposedly an abortive case of a child in the next house.

There were two more of the 24 serum cases in which paralysis developed and I hardly believe that Drs. Aycock or Luther will criticize me in stating that the first of these two showed a cell count of 500 in the spinal fluid and was considered one of the most virulent cases as well as having the highest cell count they have ever run across in their experimental research work.

This child lingered on the dangerous list with intercostal paralysis for about 72 hours before she began to improve and when released from isolation, showed much improvement. This improvement has continued as reported by the after-treatment workers and by Dr. Arthur T. Legg who has charge of that work for the Harvard Infantile Paralysis Commission.

The other 18 cases in which serum was used, have disclosed slight weakness in various muscles which Dr. Legg is convinced will be overcome by proper treatment. Numerous inquiries have been made regarding this blood serum. There are many skeptical of its value, their contention being that decompression has as much value as the pressure of the spinal column is thus relieved.

Drs. Aycock and Luther have repeatedly admitted that they do not claim that the serum will prevent paralysis or that if it was not used, the child would or would not have paralysis. The Health Department, however, has knowledge of one case in which the parents after the lumbar puncture was made and the spinal fluid was examined and confirmed the diagnosis, refused to allow the serum to be used and paralysis resulted. This is one case and one case only and does not prove anything.

The 15 deaths that occurred gave Haverhill a 14 per cent. rate in its total number of cases thus far, and of that number four were of the progressive type resembling what has been commonly known as Landry's disease. There was one autopsy in a case in which the death certificate gave bronchopneumonia as the cause of death.

The autopsy disclosed that the child first taken ill five days before death and being normal on the fourth day before death, had a slight bronchopneumonia which was insufficient to cause death. There were unmistakable signs in the brain and spinal cord to show that infantile paralysis was the actual cause of death.

The undertaker who had charge of this case, had previously handled four other cases of infantile all of the respiratory type, and in pre-

paring the body for burial, he found the same rigidity of arm and leg as well as a froth, not a fluid, exuding from the nose and mouth that were characteristic in other cases shortly after death. This froth was forced out through the nostrils principally by a peculiar gas or rather air that was expelled from the lungs.

The systemic symptoms that have occurred in nearly every case in the Haverhill epidemic have been fever, rapid pulse, vomiting, constipation, drowsiness, and irritability. These have been accompanied by sore throat, transient flushing of the face, abnormal sweating, and retention of urine. There was one case in which diarrhea prevailed for 48 hours two days before the actual onset. This patient was a contact of the case I have referred to in which a patient was given only one dose of blood serum and was found with intercostal paralysis dying three days later.

The best information obtained from the Haverhill cases is that the period of infectivity ranges from 5 to 10 days. The reports show that 68 cases were reported in from 3 days after onset to 10 days, with 28 reported after the third day. All of these 68 cases were in a severe paralytic state.

There were three cases not isolated, being classed as belated reports, the physicians making their reports after becoming convinced that their patients had had infantile. There were two spastic cases. One of these was an infant in which the first diagnosis was meningitis. There were four cases under 1 year of age, two of which were six months old and in each of these cases, the babies were first regarded as suffering from teething.

The meningeal symptoms that prevailed were pain on spinal flexion, hyperesthesia, and increased reflexes. The pain was characteristic on the forward nodding of the head and the forward bending of the spine. The tenderness was found in both the skin and the deep pressure of muscles as well as motions of the joints.

No one, as far as known, has been able, as yet, to find the causative organism or the mode of transmission, yet more than ten reasons for every case that has occurred in Haverhill have been suggested as possible causes for the spread of cases that resulted in the epidemic.

Just how the first child contracted the disease is not known. It is, however, known that with onset considered, the first case reported was not the first but was the second. The first reported case was a child in a family of nine. There was a 1917 case in this family which is still receiving treatment, the child having extensive deformities.

This family lives in a three decker, the house being located on the side of a hill so that the basement provides a fourth tenement. Two other children in the family had all the typical symptoms but no paralysis, and were very suggestive of being abortive cases.

The second case reported and the first actual case by onset, although both may have become infected at the same time, is one of three children of the family on the ground floor of this three decker. Inquiries revealed that a supposedly abortive case occurred about the same time in a child in the fourth family in this house.

This shows that in addition to two active paralytic cases in this house there were also apparently three abortive cases. The case histories also reveal that the third case reported was exposed to an abortive as were the sixth and seventh cases.

This seventh case resulted fatally, yet it was preceded by two other deaths although this was not known until afterwards with onsets preceding the seventh case as reported. One of these first cases was a newsboy who delivered papers at the home of one of the first actual deaths as by onset.

Three other children in this family where the seventh case occurred, subsequently came down with the disease and the second death occurred in the family with the other two children paralytic. The fifth child, the oldest in this family, had no signs of the disease, but had a history of having a month previous suffered from muscular pains after his release from a hospital where he had been treated for pneumonia.

This gives a total of 15 active and abortive cases within 17 days although at that time only three cases and one death were actually known. Inquiry also disclosed that six of the first eight cases had for some time previous to their illness frequented a playground daily and engaged in football.

The first nine cases were reported within a circle of about 1,000 feet radius and the 10th came from a place fully a mile distant. This case was reported August 17th and had an onset of 10 days. This child was one of a group of 25 children all cousins in five families who lived in a new settlement with no other families within 200 yards.

When the case history of this child was sought, it was found that another child in the family was an abortive case. The other four mothers, who were related by marriage, admitted that 12 of their 25 children had from August 4th, the second week of the epidemic, suffered from all the typical symptoms, the first one having been about at large, even on an auto trip to Canada.

This 10th case, with the 13 probably abortives meanwhile, gives a total of 29 active and abortive cases for the first three weeks of the epidemic. The case histories show that 38 of the 104 active cases were contacts with abortive or active cases.

It is rather suggestive in considering these questions of contact, that in one fatal case, a cousin visited this family on the very day the deceased was taken ill. No physician was called

until four days later after paralysis had set in. An abortive case was also found in another child. The patient died in 10 days. On the 12th day after this child was taken ill, the day after he was buried, the cousin who lived in a town six miles away, was found with paralysis already set in.

No secondary cases have been discovered but besides the family in which four children had the disease, there were three instances in which there were two cases. There were also two families in which previous cases had occurred and in one of these there were two old cases one of 1917 and the other of 1921. The mothers of two patients had the disease some 20 years ago.

The epidemic seemed to run true to the form of previous epidemics. The peak has usually been reached in the eighth week although the 11th week in Haverhill showed the largest number of cases by report but some of those really belonged to the previous week.

The opening of the public schools was postponed two weeks in the seventh week of the epidemic. This action was taken by the School Board and immediately the Board of Health placed a ban on private and parochial schools and on minors attending theatres, dances and public gatherings.

The ban was not lifted until last Monday, the opening of the schools thus having been delayed six weeks. This action was subject to controversy pro and con, but action of the School Board and the Health Department officials seemed to be generally approved even though it was conceded that business suffered materially.

The closing of schools has always been a mooted question. Outbreaks of scarlet fever and diphtheria have been controlled by constant supervision and daily examination of pupils. The Health Board members repeatedly advised parents to restrict their children but this advice was not followed, as children who could have been restrained by attending school roamed at will about the city during the six weeks the schools were closed.

This involves the question of parental control and indifference of fathers and mothers. An example of the latter occurred in one reported case where there were 9 children. These children went about from morn until night, and two were ill, supposedly abortive cases, before the third was found with paralysis. A fourth was presumably an abortive after the active case was reported, as the child had all the systemic symptoms.

The ban of six weeks had its amusing as well as its serious aspects. The most amusing phase occurred in a neighboring New Hampshire town where the people became fearful over the presence of so many Haverhill people, old and young, at a three nights' carnival of a Haverhill fraternal organization. Complaints to

county authorities followed with the result that on the closing night, the grounds were raided by four sheriffs, and in less than an hour, the profits of the carnival were reduced by fines imposed on Haverhill and Lawrence men for conducting gaming devices.

The postponement of the opening of the schools was followed by an exodus of families and children to country and seashore resorts and some of the parents some time ago decided not to allow their children to return to school until November 1st or a week later. The school officials estimated a 90 per cent. enrollment on the opening day last Monday.

The exodus of children and parents developed that one mother who went to Vermont with her only child came back home after six weeks' absence with typhoid fever, being stricken ill a few days after her return.

The number of children who during the epidemic might have been classed as having been ill with abortive cases will never be known. There is no way of finding out other than that some physicians reported from three to six cases in which the typical symptoms were prevalent, their patients becoming normal after five days.

These cases with the period of infectivity generally regarded as from five to ten days may have helped to spread the disease, but there is no way of knowing especially as physicians have in the past relied upon permanent paralysis as evidence necessary to the correct diagnosis of the disease.

The average age of the children who had the disease was 5 years and 8 months. This corresponds to the average age of previous epidemics. There were two adult cases, one a man 31 years old who came to Haverhill for an operation on his palate and was isolated and the other a woman 40 years old. A case occurred nearby the home of this woman and her history showed she patronized a store visited by members of the family of the nearby case.

It was impossible to elicit a definite history in more than 60 of the cases as the parents had no knowledge of any exposures to abortive or active cases.

An interesting coincidence is that the town of Groveland across the Merrimac river from Haverhill and the inhabitants of which either work or trade in Haverhill did not have any cases until the 12th week of the epidemic. The neighboring towns of Georgetown, Merrimac and West Newbury had cases meanwhile. There were four cases in Groveland for the 12th and 13th week and none have since occurred.

This recalls an interesting coincidence. Only one case, and that fatal, occurred in Danvers about 16 miles from Haverhill. This was a woman aged 31 and the mother of two children. Fear of the disease kept that woman and her children to her home for September and most of August. She, however, accepted an invitation to spend a week end at Alton Bay, N. H. starting October 1st. She returned home Oc-

tober 3rd. She was accompanied by three others and made the trip to and fro by auto, passing through Haverhill each way.

In going to Alton Bay and passing through Haverhill her friends invited her visit a store for ice cream and soda. She refused, remaining in the machine. On October 7th she was stricken ill and died of respiratory paralysis on October 10th. This may be or may not be suggestive but the facts are confirmed by relatives.

Many interesting things occurred during the epidemic. These included the refusal of traveling salesmen to visit Haverhill and conversely, the fear of people meeting Haverhillians visiting other places. This is emphasized in the refusal of Providence, R. I., school officials to allow teachers to visit schools in that city, after they found they had registered from Haverhill.

Haverhill has for 10 years been providing after-treatment for infantile paralysis patients. In this work the Health Department has been the pioneer and the only municipality in the state or the country to employ such workers, the convalescents being visited weekly.

There were 47 old cases being given such treatment until this epidemic broke out. The peak had not been reached when the Health Department employed a second worker and the two young women, Miss Ada M. Slamin and Miss Florence L. Kenney, who have been connected with the Harvard Infantile Paralysis Commission for 10 years, are now devoting three days each week to after treatments.

Two special clinics have already been held

at which 68 convalescents were examined by Dr. Legg and treatments prescribed in each case. One case occurred in which the parents refused to have their child, with both legs involved, examined. This child had a physician when first taken ill and the M.D. was told not to call again when he said he would visit the child the next day.

Neighbors who did not see the child about, were fearful and, as a result of their complaint, the child was found in the paralytic state 26 days after he had been ill. The parents of this child do not believe in physicians, it being understood that their religious belief is opposed to medicine.

Another clinic, two having been held yearly for the past 10 years, will be held early in December when all the old and new cases will again be examined, it being estimated that two days will be necessary, as fully 120 convalescents are expected to attend.

The extent of paralysis as shown at recent special clinics was: 11 arms with other deformities; 17, one leg and other paralysis; 18 both legs involved; 3 facials; 2 necks; 9 with slight muscular weakness; 5 throats; 2 intercostals; 3 hips; 1 toes; 1 abdominal weakness; 2 spastics; 1 hand.

The clinics disclosed that 48 will need long-continued treatment—this treatment to be repeated at frequent intervals—as there was great involvement of various muscles. Shorter periods of treatment and not as often, as the paralysis was less involved will be needed for 19 of those examined. No case was discharged at the clinic.

REGISTRATION OF NURSES*

BY JOHN M. BIRNIE, M.D., F.A.C.S.

For some years I have been intimately concerned with the details of registration in medicine in the Commonwealth and more remotely have been forced to consider some of the problems involved in the registration of nurses. The medical and nursing professions are so closely identified that many of the vexatious questions of education and registration are common property, and possibly you may be able to profit by our experiences which have extended over a greater span of years. The conditions in your profession today are somewhat analogous to the conditions which existed in the medical profession twenty-five years ago. We have made some progress and we have some rather definite plans for the future but changes are slow due to the multiplicity of the factors involved, and to the very honest differences of opinion which exist within the profession.

Twenty-five years ago there were 162 medical schools in the United States, while today there are less than half of that number. We have

fewer but vastly better schools. This reduction in numbers was brought about by consolidation and readjustment. The changed condition was purely voluntary and was more or less a direct result of investigation and classification. The statistics, thus obtained, were given wide publicity and the strong force of public opinion was brought into play. Today, only five medical schools in the United States are considered as unsatisfactory by the various associations and foundations which have undertaken to investigate and classify them. I am sorry to say that two of these institutions are located in Massachusetts. All but the five schools referred to above have very similar entrance requirements, and the catalogued courses and years of study demanded, are so nearly alike that a person holding a degree in medicine from the approved schools is theoretically prepared to take his examination in any state or territory in the union. Some states require, in addition to a medical degree, proof that the applicant has served a satisfactory hospital internship. In other words, some states require Post-Graduate study.

*Read at the opening meeting of the Massachusetts State Nurses' Association at Springfield, October 29.

This requirement works no real hardships as any deficiency can readily be adjusted. The conditions existing in nursing schools is quite different, if we consider the entire United States. To be sure, preliminary requirements, time devoted to training, and subjects covered, are theoretically the same in every school in the same state. They differ widely in the several states, so that it is perfectly possible for a young woman to receive her diploma of nursing from the highest type of school and yet find herself debarred from taking the examinations for registration in another state. Worse yet, she cannot rectify any deficiency, either real or fancied, which may exist. To be more explicit, the Massachusetts Board of Registration of Nurses, requires of its candidates for examination, three years of training. I say, the Board requires, because it is a Board ruling and not state law. This means that a young woman graduated from the Yale School of Nursing or from Saint Luke's in New York cannot take the examination in Massachusetts. Furthermore, the aforesaid young woman in addition to her hospital diploma may have taken a six months' course in Obstetrics, four months in Operating Room Technique, two months in Dietetics, etc., but to no avail. Her Post-Graduate work does not count. This condition of affairs affects not only the candidates for registration, but every hospital in the Commonwealth which maintains a training school.

Your Board has ruled "The Superintendent of an approved nursing school, the Assistants, Supervisors, and all other nurses holding permanent positions in the school, must be registered nurses in Massachusetts." This ruling prevents your superintendents from engaging the services of many high-grade, well educated, experienced women, who lack possibly four to six months of undergraduate training. I am not advocating the lowering of standards in Massachusetts. I would have our state stand first in all matters pertaining to education especially when that education involves the care of the sick and suffering and the maintenance of the public health and well-being. What I would like to see is such unanimity of educational requirements that a young woman graduating from a high-grade nursing school would be eligible for registration anywhere. Opportunity should be boundless. It is seldom that a person of 18 years of age can see her future so clearly that she can map her course with exactitude. I do not believe that any young woman ever looked up the State Board Requirements before she entered the training school. She takes it for granted that, if she works hard and masters her profession, she may pursue it anywhere. The consideration of State requirements also leads us to review the question of Reciprocity or some other means whereby the nurse registered in one state may obtain the right to reg-

ister in another state, without further examination. This question is of importance not only to the individual nurse, but to the many nursing schools, organizations and industries which employ registered nurses. The Massachusetts law reads: "The Board may register in like manner, without examination, any person who has been registered as a professional nurse in another state under laws, which in the opinion of the Board, maintains a standard, substantially similar to that of this Commonwealth." Of course this means that the registrant from another state cannot be registered here, if she lacks the three full years of undergraduate training. Twenty states in the Union require less than three years of undergraduate training and five more states leave the length of training demanded to the discretion of the Board of Registration. Whatever arguments I have presented for uniform requirements for candidates for examination, apply equally well for candidates for reciprocal indorsement.

The question of Reciprocity for physicians is handled in various ways in the different states. The older methods of real reciprocity by formal agreements, lengthy, stipulated, signed and sealed has given way to a gentlemen's agreement rather informal in character but none the less thorough and protective. All of the States except Florida, Massachusetts, Missouri and Rhode Island have some method of registering physicians from other states without examination. While the Massachusetts law will not permit of registration by Reciprocity, yet many other states will accept our registered physicians without examination. In fact, about one-half of the states register licentiates of any state who present satisfactory evidence of good moral character and practice record, certain conditions being met, whether or not the State Board issuing the original license returns the favor.

On November 4, representatives of the six New England States met to consider ways and means whereby properly qualified persons may be permitted to practice anywhere within their jurisdiction on one examination. Another method of handling registration is by means of the National Board of Medical Examiners. The acceptance of its certificate is not mandatory by law, but its organization, administrative policy, and personnel, are of such high quality that it is accepted by thirty-seven states and territories including Massachusetts. The Medical Examining Boards of practically all the remaining states are sympathetic with the purpose of the National Board and propose to affiliate with it as soon as the necessary amendment is secured to the Medical Practice Act. Its certificates are accepted by the United States Army, the Navy, and Public Health Service as meeting the qualifications for admission into these services of the Government. Recognition has also been obtained from the Triple Qualification Board of

Scotland and Conjoint Examining Board of England. This truly is a remarkable record for cooperative effort. In suggesting any method of registering nurses, and in questioning nursing educational standards, I do not wish to hold up, as a worthy example, the medical requirements in Massachusetts. They are at a rather low level, but not because the Doctors are indifferent or satisfied. They are not. They have been striving for many years to provide a remedy so that no one may be scornful of our methods of education. The nurses are in a far better position than the Doctors. I do not know whether or not it is because the women have greater persuasive powers than the men. It certainly is true, that our legislators have granted to the nurses the identical things they have repeatedly refused to us, namely; The right to grade schools and exercise some forms of reciprocity. They say to us that it is too great power to entrust to any board to allow it to say that a school is unsatisfactory and that its graduates may not be examined. It is because you have these powers and because they can be rescinded that I have suggested caution in their application.

Medical Educators today realize that medical science is so vast and so highly specialized that it is impossible to train students adequately in all its branches. The suggestions for modification of undergraduate medical teaching are entirely along lines of simplification and shortened courses. Stress is being laid on the necessity for teaching the fundamentals thoroughly and leaving all of the specialties for Post-Graduate study. This is also a suggestion for the nurses. Our nursing courses have become so comprehensive and so elaborated by special training that most of our training schools are hard put to it to provide the necessary material for their

undergraduates, even through the expedient of hospital affiliation. Medical Schools situated in the smaller cities were forced out of existence because of their inability to provide sufficient clinical material to satisfy the demands of a rapidly widening curriculum. It would be a calamity if the smaller training schools for nurses should suffer a like fate. In the August number of the *American Journal of Nursing*, Mary E. Gladwin has some very interesting suggestions concerning nursing education and registration. Among other things she suggests a central school for nursing which would send its pupils to smaller hospitals for portions of their practical training. I have advocated this same thing in a somewhat broader form. I believe we might have a central hospital in the city with allied smaller hospitals located in the surrounding towns. These smaller hospitals might be distant from the central hospital as far as forty miles, or not over two hours by automobile. I believe it would be possible to staff these subsidiary hospitals both as to medical and nursing personnel from the parent institution. The more severe cases or those requiring special diagnosis or treatment would be brought to the central hospital. These exceptional cases again might be returned to the outlying hospitals to convalesce among their friends. This plan of linked hospitals might also help to solve the problem created by the lack of Doctors and Nurses in the rural communities.

The matters which I have suggested are only a few of the vexatious questions which concern both the medical and nursing professions. It is only by the hardest kind of effort directed toward high ideals, tempered with common sense, that we may justify our professional existence. We should have but one goal in sight, the prevention, alleviation, and cure of disease.

MEDICAL PROGRESS

CARDIO-VASCULAR REVIEW FOR 1926

BY SEELEY G. MUDD, M.D.,* AND HOWARD B. SPRAGUE, M.D.

DURING the calendar year of 1926 there have been over 600 contributions to the cardio-vascular literature. Of these, about 200 have been selected for this review and although no revolutionary discoveries have taken place, many important advances in the study and treatment of cardiac and vascular disease have been made. Special interest has been shown in four subjects particularly: (1) circulation rate and blood volume; (2) the investigation of the capillaries and their function; (3) coronary disease and cardiac infarction; and (4) hypertension.

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ANATOMY AND PHYSIOLOGY

Capillary Circulation

Crawford and Rosenberger (*J. Clin. Investigation*. 1926, 2:343) devised an apparatus by means of which it is possible to take cinematographic records of the capillaries of the nail fold in human subjects. They also (*J. Clin. Investigation*. 1926, 2:351) studied the calibre of the arterial and venous limbs of the capillaries of the nail fold by means of cinematography for a period of 8 days, in 8 normal individuals. "Changes took place from moment to moment and from day to day. These changes were relatively small compared to the total breadth of

the capillary limbs, which remained approximately the same from day to day. The extent of the changes in the arterial and venous limbs of the same capillaries was about the same. . . . Marked variation was seen between the different subjects. There was no evidence that these changes were due to a peristaltic wave of contractions, a contractile motion of the capillary like that of the heart, or a pulsatile motion, conveyed to the blood stream by the heart beat. . . . The blood flow in these capillaries was studied by inspection, and was seen to vary continuously." Furthermore these investigators (*J. Clin. Investigation*. 1926, 2:365) studied the calibre of the arterial and venous limbs of the capillaries in the nail fold in seven cases of auricular fibrillation, both before and after digitalization. The behavior of the different capillaries in the same subject differed from one another. The extent of the changes during the stage of decompensation was much greater than has been observed in normal subjects, but as compensation became established after digitalis, the variation became less marked. The magnitude of these changes was dependent on the state of cardiac decompensation, and had no relation to the amount of irregularity of the pulse. In the case of marked congestive failure the stream was slow in most of the capillaries and had a granular appearance. As compensation became established, there was a corresponding improvement in the blood flow.

Danzer (*Am. J. M. Sc.* 1926, 171:654), observed a case of heart failure associated in all probability with bicuspid regurgitation. He described a new type of capillary pulsation, one coming from the venules back into the capillaries, which he designated as—"retrograde capillary pulsation." He suggests that the diagnosis of this type of capillary pulse may be a valuable diagnostic aid in cases of tricuspid insufficiency or marked venous stasis.

Goldblatt (*Heart*. 1926, 12:281) reported experiments which show that: "The reactive hyperemia of the decentralized limb of anaesthetized dog is in the main similar to that observed in man. A definite increase in the magnitude and duration of the reaction is observed when the period of the anemia is lengthened." The reaction reaches a maximum when the occlusion of the artery lasts for about two minutes. Neither the pituitary substance or adrenalin play any demonstrable part in producing the reaction, and no explanation is advanced as to its cause.

Lewis and Zotterman (*Heart*. 1926, 13:203) assert that the reaction of the cutaneous vessels to ultraviolet rays consists essentially of three parts: "A local and active vasodilatation; a reflex dilatation of the muscular arterioles (in little evidence); and, locally, increased permeability of the vessel walls. This triple reaction ap-

pears to be common to all forms of tissue injury so far examined. The vasodilator substances produced by ultraviolet irradiation of the skin diffuse into the surrounding skin and are conducted away by lymphatic channels. A similar event happens in the case of skin injured by freezing. The underlying cause of the vascular reactions following ultraviolet irradiation is identical with that produced by injuries yielding quicker reactions; namely, the liberation of substances having a histamine-like action."

Lewis (*Heart*. 1926, 13:153) describes experiences bearing on the irresponsiveness of the minute vessels of the skin, and observations on 15 selected cases. He showed that: "the vessels of the skin which had been injured in a number of ways, by stroking in the susceptible, by freezing, burning, the application of mustard gas, or irradiations from a mercury vapour lamp, are subsequently dilated and the skin becomes more or less edematous. When the edema has subsided, these vessels are found to be in a peculiar condition. They contract imperfectly to the stimulus of adrenalin and pituitary extract, or refuse to contract at all. They are more or less refractory to the stimulus of histamine. Several cases of telangiectasis arising out of known injuries, and several arising from unknown causes, are described. The vessels involved vary; in some, the superficial venules are alone dilated; in others, the capillaries are also involved. Two patients with a congenital naevus were similarly examined. In all these cases the affected vessels were found to be more or less irresponsive to vasoconstrictor substances and to histamine. The same statement applied to diffuse telangiectasis of the weather-beaten face and to leashes of venules on the chest wall. It is argued that the vessels comprising telangiectases (and congenital naevi) have become dilated because they have lost their contractile power; and that the peculiar condition of these vessels is similar to or identical with that which occurs immediately or soon after actual injury."

Circulation Rate

Blumgart and Weiss (*Proc. Am. Soc. Clin. Invest.* 1926, 2:600) determined the velocity flow of the blood in over 150 patients. The method employed was to inject into the cubital vein of one arm an active deposit of radium, and when this radio-active substance reached the cubital arterial vessels of the other arm, the beta particles and gamma rays emerged through the tissues of the arm and were registered by a sensitive detecting device. No toxic effects have been noticed. In 50 normal persons the time from elbow to elbow ranged from 15 to 24 seconds. The average time was 18 seconds, and only 9 individuals exceeded 20 seconds. Circulation times above 24 seconds were always associated with pathological conditions in the circulatory system. In 12 pa-

tients with auricular fibrillation the time averaged 44 seconds. In 4 of these patients, normal rhythm was restored by the use of quinidine, and the reduction of circulation time averaged 8 seconds. Further studies are in progress.

Gammeltoft (*Compt. rend. Soc. de biol.* 1926, 94:1099) made a study of the cardiac output in five pregnant women, using the method described by Krogh and Lindhard. His results show that there was a slightly increased cardiac output before delivery, probably due to increase in blood volume.

Harrison and Blalock (*J. Clin. Investigation.* 1926, 2:435) studied the cardiac output in dogs by the Fick method. In pneumonia the cardiac output is usually increased. When the infection is of short duration and either mild or overwhelming, the increase is less than in the severe, well developed pneumonia of longer duration. The increase in cardiac output appears to bear little relation to changes in oxygen consumption, but appears to depend to some extent on anemia and to a greater extent on anoxemia. On the assumption that the cardiac output is also increased in pneumonia in man, heart failure is to be ascribed to the increased strain on the circulation rather than to weakness of the myocardium. From this point of view, oxygen and digitalis appear to be definitely indicated, whereas the value of caffeine and camphor is questionable. These investigators (*J. A. M. A.* 1926, 87:1984) experimented with unanesthetized dogs and those narcotized with morphine, and showed that the cardiac output was increased by anemia and anoxemia. On the assumption that this also holds true in man these authors advocate early transfusion in anemia and early administration of oxygen in acute pulmonary disorders. Acute hemorrhage causes no change in the cardiac output of dogs until blood amounting to about 3 per cent. of the body weight has been lost, when the first signs of shock appear. Marked diminution of the cardiac output occurs if there is further loss of blood.

Kendrew (*Heart.* 1926, 13:101) reports a method of graphically recording venous pressure in man. As an illustration of the method, records are described of the pressure changes in the veins of the forearm dependent on occlusion and release of the circulation to the limb. Evidence is brought forward that the vessels of the limb to which the circulation is arrested dilate during the period of arrest. When the circulation to the limb is released after its arrest for several minutes, the quick inrush of blood into the veins, by way of the arteries, causes a temporary increase in venous pressure.

Rosen and White (*Am. J. Physiol.* 1926, 78:168) in a study of the relation of pulse pressure to stroke volume indicate that in man simultaneous determinations "of the circulation rate by the ethyl iodide method and of arterial pressure show that within the limit of error the pulse pressure is directly proportional to the stroke

volume under conditions that have essentially the same diastolic pressure and pulse rate. When marked variations occur, they may be directly due to the effect that differences in the coefficient of elasticity of the arterial wall may have, determined by the arterial pressure, and that differences in pulse rate, and consequently in systolic time, have upon the relation of the stroke volume to the pulse pressure. If this is taken into consideration, it should be possible to employ the product of the pulse pressure and the pulse rate as an index to the circulation rate in consecutive observation on the same subject."

Stewart and Crawford (*J. Clin. Investigation.* 1926, 3:449) continued their researches on the blood flow in dogs and infer that during regular tachycardia the blood flow was usually unchanged, although in one-third of the experiments it was decreased. The oxygen saturation of the arterial blood showed a small decrease in one-third of the observations but was usually unchanged.

Stewart, Crawford and Hastings, (*J. Clin. Investigation.* 1926, 3:435) in a study of the effect of tachycardia on the blood flow in dogs show that in auricular fibrillation the blood flow is decreased 20 to 62 per cent, but per se this type of rhythm does not affect the oxygen saturation of the arterial blood.

Stewart, Crawford, Hastings and Cohn (*J. Clin. Investigation.* 1926, 2:599) obtained evidence of the rate of blood flow in unanesthetized dogs during experimental auricular fibrillation. Two insulated wire electrodes were sutured to the right auricle twenty-four hours preceding the experiment. Auricular fibrillation was induced by faradic stimulation of the auricles, and rapid regular rhythm by single induction shocks at known regular rate. Electrocardiographic records were obtained. During auricular fibrillation the oxygen saturation of the arterial blood was unchanged. During regular tachycardia it was usually unchanged, but was occasionally reduced 4 to 7%. Calculation of the relative changes in blood flow during the period of auricular fibrillation indicates decreases varying from 20% to 62% of the normal. The blood flow during auricular tachycardia was unchanged in 11 observations in 7 dogs, and was decreased in 5 observations on 7 dogs, and was decreased in 5 observations on 3 dogs.

General Anatomy and Physiology

Anrep and Segall (*Heart.* 1926, 13:239) have studied in denervated and innervated lung preparation the peripheral and nervous regulation of the coronary circulation. "In the denervated heart, the arterial blood pressure is the only mechanical factor which determines the coronary circulation. Neither a change in the heart rate nor in the strength of the cardiac contraction, as produced by

changes in the stroke output, have any influence on the coronary flow per minute. In the innervated heart, the coronary blood flow is determined also by the minute output of the heart. An increase in the output is accompanied by an augmented coronary flow. This effect is of reflex origin, and is independent of the simultaneous changes in heart rate and strength of contraction; it disappears after section of both vagi. While the heart rate is controlled, stimulation of the vagi causes a diminution in the coronary flow. On the other hand, the coronary flow is considerably increased following section of the vagi. It has thus been demonstrated that there are vaso-constrictor fibers to the coronary vessels in the vagi, and vasodilator fibers in the sympathetic nerve." Observations have also been recorded regarding the effect of adrenalin, atropin, stimulation of the sensory nerves, and changed cerebral pressure on the coronary circulation. These investigators (*J. Physiol.* 1926, 61: 215) found that, in an innervated heart-lung preparation, the heart rate was influenced directly by the blood pressure in the brain. A rise in cerebral pressure caused a slowing of the heart rate, an effect determined by reciprocal action of the vagus and sympathetic nerves. The heart rate is influenced by reflexes arising from changes in the aortic blood pressure, a rise in pressure causing a retardation of the heart.

Carter and Andrus (*Proc. Am. Soc. Clin. Invest.* 1926, 2: 599) show that a change in the hydrogen ion concentration of the fluid bathing the heart from pH 7.4 to pH 7.0 causes a slowing of the rhythm, lengthening of the P-R interval, and depression of the intra-auricular conduction, whereas raising the pH from 7.4 to 7.8 results in a quickening of the rhythm, and an increase in the rate of conduction. Studies in the alteration of the calcium concentration with constant pH, indicate that the effect of the pH changes cannot be due to changes in the ionization of the calcium in solution. These authors suggest that the rate of origin and propagation of the excitatory processes in the heart is dependent upon the difference in H-ion concentration within and without the cardiac cells.

De Buys and Samuel (*Am. J. Dis. Child.* 1925, 30: 355) made 623 observations on the growth of the heart in 400 subjects over a period of 39 months. From these they conclude that: "Changes in the position of the apex beat from above downward and from without inward are due to a more rapid growth in the size of the thorax as compared with the growth in the size of the heart, and there is no element of rotation in the heart, nor does it assume a more vertical position as age advances, during the period studied. The average weight of the heart is .76% of the body weight at birth, and .46% of the body weight in an adult. The nipple line is outside M.C.L. (mid-clavicular line) at birth."

Drinker, Churchill and Ferry (*Am. J. Physiol.* 1926, 77: 590) in an investigation of the volume of blood in the heart and lungs describe a method for determining the cardio-pulmonary blood volume; which depends on ascertaining the total blood volume in a heart-lung preparation in the cat, and making a series of subtractions of the volume in the systemic part of this reduced circulation. The heart-lung preparation used is of new type. The lungs are enclosed in the chest, and a new method for determining blood flow is employed. These authors demonstrate that increase in inflow into the right ventricle is the only means falling within ordinary normal experiences which result in increase of the pulmonary blood volume; and that when the left branch of the pulmonary artery is occluded, the right lung gives free passage to the pulmonary blood even when cardiac inflow is greatly increased. On the other hand, occlusion of the right branch of the pulmonary artery indicates that the left lung is less in vascular size since diminution in aortic output appears at once. If the pulmonary veins are clamped to complete occlusion, without change of right ventricular inflow, the lungs can be made to contain slightly more than double their original volume. A discussion is given of what may be termed the passive regulation of pulmonary blood volume and blood flow.

Holman and Beck (*J. Clin. Investigation.* 1926, 3: 283) in a study of the effect of experimental aortic and pulmonic stenoses in 12 dogs affirm that: "A stenosis which permanently constricted the pulmonary artery to a circumference less than one-half the normal size was invariably fatal. A pulmonic stenosis of marked degree was immediately followed by an acceleration in pulse rate and by a drop in general blood pressure, both of which gradually approximated normal. . . . In experiments 10 and 11, the animals survived large septal defects when associated with a pulmonic stenosis, whereas interventricular defects of equal or of smaller size in other animals proved invariably fatal due to pulmonary congestion and edema. Aortic stenosis beyond the left subclavian artery lowered peripheral blood pressure but caused no acceleration in pulse. . . . An increased flow of blood through the heart is a more effective stimulus to cardiac dilatation and hypertrophy than increased peripheral resistance. . . . Partial constriction of the pulmonary artery or aorta by a metal band or tape frequently ended fatally through erosion of the vessel wall." X-ray and necropsy findings are reported.

Kugel and Gross (*Am. Heart J.* 1926, 1: 304) present data to prove that blood vessels exist in some of the valves in a small percentage of hearts, other than those of fetuses, but these are of developmental and not inflammatory origin. They occur most frequently in the aortic leaflet in the mitral valve, and may exist either in complete or incomplete forms. Be-

cause of the constancy of the finding of these blood vessels, they suggest names for the most characteristic branches. "The proof of the existence of Arteriae Valvulares, according to their suggestion, should put a new impetus into the study of the mechanism of valvular endocarditis, and render tenable the belief in the possible embolic origin of at least some forms of valvular endocarditis."

Kure and Hata (*Ztschr. f. d. ges. exper. Med.* 1926, 50:155) report studies on 23 dogs and indicate that the right accelerator nerve increases the heart rate markedly but affects A-V conduction only slightly, while the left accelerator raises the heart rate only moderately, but stimulates A-V conduction considerably. Thus the right nerve innervates the S-A node preponderantly, while the left innervates the A-V node chiefly.

Laubry, Walser and Deglaude (*Compt. rend. Soc. de biol.* 1926, 94:240) isolated the gastrocnemius muscle of a frog (with intact nerve and vessels) and exposed it to the faradic current. After the muscle was fatigued the recorded electromyograms resembled the electrocardiograms usually attributed to block of branches of the bundle of His. Of course no conduction apparatus could be involved in these muscle experiments. The authors suggest the possibility that the changes revealed by the electrograms are in both instances of muscular origin dependent on muscle fatigue.

Lindhard (*Am. J. Physiol.* 1926, 77:669) describes in detail a dye method for determining blood volume in man by using a 1 per cent. solution of Vital Red injected intravenously. It is shown that it is absolutely necessary for the blood of the subject to be completely mixed with the dye injected, by having the subject walk up and down the floor according to a suitable routine. Checked determinations on the same subject agree within 0.2 liter. The total blood volume in 11 healthy male subjects was found to range from 4.2 per cent. to 5.9 per cent. of the body weight, the average value being 4.9 per cent.

Lombard and Cope (*Am. J. Physiol.* 1926, 77:263) in a study of the duration of systole of the left ventricle of man consider the systolic interval as the time between the beginning of the rise of the primary wave of the carotid sphygmogram and at the bottom of the diastolic notch, an interval which they call the P-D time. In 252 tests on 176 men, standing after resting, the average of the total tests were as follows: total cardiac cycle 0.7324 sec.; systole 0.2341 sec.; diastole 0.4983 sec.; pulse rate 81.92. In 94 tests on 91 men in sitting position, the average of the total tests was given as:—duration of total cardiac cycle 0.8156 sec.; systole 0.2677 sec.; diastole 0.5479 sec.; pulse rate 73.57. Sixty-six tests were performed on 64

recumbent men; the average of total tests was as follows:—duration of complete cardiac cycle 0.9453 sec.; systole 0.3003 sec.; diastole 0.6450 sec.; pulse rate 63.47. A smaller number of tests were made on women, when standing, sitting, and recumbent. In the tests on women the pulse rate was slightly higher, and the duration of systole and diastole were somewhat less than corresponding tests on men. The authors consider that at least fifteen cycles must be measured in a given case to obtain a reliable average, since the length of successive systoles is quite variable. They affirm that: "The duration of the average systole, for like cycle lengths, is longer in the recumbent position than in the sitting, and in the sitting than in the standing posture. The force of gravity delays the return of the venous blood to the heart in the sitting, and still more in the standing position." The systolic, diastolic, or pulse pressure, were not found to influence the duration of systole. There seemed to be no relationship between the length of the systole and the age, height, weight, time of day, time of year, or the smoking of tobacco.

Richter (*J. A. M. A.* 1926, 87:1300) describes a zinc electrode 1 inch square held against the skin by a paste of kaolin and saturated zinc sulphate solution, as being a suitable contact for recording electromyograms and electrocardiograms.

Stewart (*J. Clin. Investigation.* 1926, 3:241) studied the effect of increased heart rate due to the injection of atropine on the oxygen saturation of the arterial and venous blood of patients with heart disease in five cases of auricular fibrillation and in four individuals with normal rhythm. He concluded that "tachycardia per se whether regular or irregular does not affect the oxygen saturation of the arterial blood in cardiac patients."

Thompson, (*J. Clin. Investigation.* 1926, 2:477) in an investigation of the blood volume in myxedema, employed the plasma volume method of Keefe, et al., except that Brilliant Vital Red was substituted for Vital Red, and isotonic sodium oxylate was employed instead of powdered oxylate to prevent clotting. Thompson suggests that in cardiac edema the excess tissue fluid is chiefly intercellular and the skin pits on pressure, while in myxedema the excess tissue fluid is chiefly intracellular and the skin does not pit on pressure. Cardiac edema may be explained on the basis of venous congestion, dependent upon increased capillary filtration pressure while myxedema probably has a much more complicated mechanism, such as the result of changed osmotic relationship between plasma and tissue cells. The charts shown demonstrate that in cardiac edema, as the weight increases, the total plasma increases, while in myxedema as the weight increases, the total plasma decreases.

ETIOLOGY AND PATHOLOGY

Angina Pectoris

Hay (*Brit. M. J.* July 10, 1926) states that radiation of angina pectoris to the scapula, shoulders, jaw, face, eyes, suprasternal notch, etc., are important because pains in these regions in indefinite cases of substernal distress may be anginal in character and aid in diagnosis.

Kahn (*Am. J. M. Sc.* 1926 172:195) discusses the etiologic factors in 82 cases of angina pectoris. Almost 25% of the patients had their first typical attack before the age of 40. Sixty-five were male and seventeen female. Tobacco and alcohol could not be excluded as contributory factors. Sudden excessive strain is the most important immediate factor preceding the attack, and its effect is more likely to be injurious in persons engaged in moderate or sedentary occupations in whom the heart and aorta have not been trained to accept sudden strain. Acute infectious causes such as rheumatic fever and infected tonsils appear to be important in initiating vascular changes in the aorta and coronary arteries. In only three cases was syphilis a factor. Diabetes was present in 10 cases. There was no direct etiologic relation between arterial pressure and the attacks. Gall-bladder disease coexisted in 3 cases. This author emphasizes (*Am. J. M. Sc.* 1926, 172:418) the importance of premonitory symptoms in angina pectoris. Of the 82 cases, 25 presented prodromal symptoms. Ten patients noted substernal or epigastric burning sensation. In a few of these, the symptoms of burning manubrial pain and epigastric pressure were combined. There were two patients with cardiac asthma and pulsus alternans and six with cerebral thrombosis who had symptoms before the angina manifested itself. In 7 cases there were prodromal symptoms of dyspnea, palpitation and fatigue on moderate exertion, with other signs and symptoms indicating myocardial impairment before development of angina pectoris. The author suggests that the pathologic process which eventually produces the symptoms of angina pectoris is a prolonged one, and that there is early involvement of the aorta and coronary arteries before the anginal symptoms develop. In the prevention of angina pectoris it is necessary to give careful study and attention to premonitory symptoms.

Kilgore, (*J. A. M. A.* 1926, 87:455) in a report on angina pectoris and pseudo-angina, summarized the records of 253 patients who complained of pain in the region of the heart. One hundred had a normal circulation; 153 had circulatory disease, and of these, 36 cases of angina pectoris were included. The pain is carefully described as to its type and location. The author asserts that the most frequent and characteristic pain in angina is of the compression type and that even though the "angina group

in the series is too small to support more than a pretty strong doubt as to the propriety of including lancinating pain at all in the symptom picture of angina, the pseudo-angina cases are numerous enough to justify the conclusion that lancinating pain is highly characteristic of this condition."

White (*J. A. M. A.* 1926, 87:1525) reports on the prognosis of angina pectoris and of coronary thrombosis. He states that: "Hypertension, coronary thrombosis, syphilis, evident arteriosclerosis, poor heart sounds, abnormal T wave in the electrocardiogram, and especially cardiac enlargement are more often found in patients with angina pectoris who succumb within a few years than in those who survive. Also, as a rule, the more severe the pain is, the worse is the prognosis. The more these various unfavorable factors occur in a given case, the worse for that patient. The prognosis is fairly good if physical examination of the heart, blood pressure, and electrocardiogram are all normal. Early death is possible in such people, but unlikely. Probably the mode of death in most of the cases is coronary occlusion, acute or chronic. In the series of 200 cases reported here, the average duration of life from the onset of the angina pectoris was 4.2 years, with 134 of the patients still living. Sex, occupation and the direction of radiation of anginal pain did not affect the prognosis of the present series. The average age at onset did make a slight difference, the age in the patients surviving five years and still living being 56, while that of those dying in less than five years was 60." Regarding the prognosis in coronary thrombosis, White affirms, "In the first place, patients often survive for years in good or in fair condition. In fact, the average duration of life after the attack in this group of sixty-two patients, half of whom are still alive, is close to two years. The sex and age at which the attack occurs seem to make little or no difference so far as prognosis is concerned. Hypertension, evident sclerosis and syphilis alter the prognosis hardly at all. The heart is enlarged in the majority of patients of both living and dead groups. Poor heart sounds and congestive failure do, however, add to the gravity of the prognosis. The finding of fever or paroxysmal auricular fibrillation at the time of the attack of coronary thrombosis has made no difference in prognosis in the few cases tabulated here."

Cardiac Asthma

Pratt (*J. A. M. A.* 1926, 87:809) defines cardiac asthma as: "a paroxysmal dyspnoea, developing suddenly while the patient is at rest, accompanied by a sense of suffocation and occurring in organic heart disease" and he affirms that this is a definite symptom complex. He states that the cases can be divided into four groups as follows: Pure cardiac

asthma, cardiac asthma with angina pectoris, cardiac asthma with pulmonary edema, and cardiac asthma with both angina and pulmonary edema. After a study of a series of 366 cardiac cases seen in his private practice, Pratt reports that there were 39 patients, or 12% with a history of paroxysmal dyspnoea with oppression, or sense of suffocation. These he regards as true cardiac asthma. In 26 of these patients, the clinical diagnosis was senile heart, or cardio-sclerosis. In two cases, rheumatic heart disease was evident, and there was one case of syphilitic aortitis. Regarding prognosis, most of the cases died within a period of two years after the original seizure. Morphine is by far the best remedy, although benefit has been obtained by the use of nitrites and caffeine. Pratt states that there is a possible danger in the use of adrenalin, as death occurred in a few minutes after its administration in two cases.

Congenital Heart Disease

Amberg and Willis (*Am. J. Dis. Child.* 1926, 32:99) report three cases of auricular flutter in children, and also a case of congenital heart disease, observed between the ages of $2\frac{1}{2}$ and 5, in whom auricular flutter was present a month before death. Necropsy in this case showed the following points of interest: Heart markedly enlarged, patent foramen ovale, marked dilatation and hypertrophy of the right auricle, right ventricle hypertrophy, marked dilatation of the pulmonary arteries, and an abscess, probably embolic in origin, in the upper lobe of the right lung. In a consideration of the cause of auricular flutter in this case the following explanation was suggested by the authors: "We may possibly assume that dilatation and hypertrophy of the right auricle reached such an extent as to interfere with the orderly function of this chamber, which would imply in this case that the development of the flutter was dependent on the extreme dilatation and hypertrophy of the right auricle."

Bruce and Ball (*Am. J. Dis. Child.* 1926, 31:196) report a case of an infant who died 40 hours after birth. The general symptoms were:—intermittent periods of cyanosis, irregular respiration, and convulsions, which they considered signs of increased intracranial pressure, suggesting intracranial injury caused by trauma at birth. Two cistern punctures were performed without relief. The spinal fluid findings were negative in each case. At necropsy the diameter of the ascending arch of the aorta was 7 mm. and it was diminished to 4 mm. distal to the point of origin of the left subclavian artery, and later widened to its original diameter before joining with the ductus arteriosus.

Grant (*Heart.* 1926, 13:371) reports a case of congenital pericardial deficiency in a man

aged 52, dying of carcinoma, who had led an active and hard-working life. This author has personally had access to the reports of 46 cases showing this malformation, and refers to 64 published cases collected by Moore in 1925. Grant states: "(a) Absence of the pericardium is not in itself a factor in the causation of cardiac enlargement, and (b) under the conditions of normal human life the pericardium plays no important part in supporting the heart wall."

Irvine-Jones (*Am. Heart J.* 1926, 2:121) reports a clinical study of 100 cases of congenital heart disease in childhood seen during the past 12 years in the three clinics at San Francisco. Forty-five are known to be alive, 29 are dead and the fate of the remaining 26 is unknown. The study is concluded as follows: "The large number of cases showing other anomalies lead us to believe that the cause of congenital heart disease lies in a defect of the germ cell or chronic disease of the maternal tissues rather than in an inflammatory condition of the fetal endocardium. Abnormalities in the electrocardiogram constitute the most prominent and constant clinical finding. The older idea that the prognosis varies with the cyanosis and polycythemia is inaccurate. Frequent respiratory infections and albuminuria do however give a poor prognosis. Half the deaths occur under six months of age and the prognosis rests partly on this factor. Tonsillectomy should be done in all cases where the tonsils are diseased and where infections are frequent. Anesthesia and operations are as well borne by congenital cardiac patients as by normal children."

King (*Arch. Int. Med.* 1926, 38:69) reports four cases of stenosis of the isthmus (coarctation) of the aorta recognized during life, two of which were thought to be instances of slight stenosis and two of well marked stenosis of the aorta at about the site of the entrance of the ductus botalli. The condition is rarely recognized during life. Symptoms that may occur are palpitation, dyspnoea, myocardial insufficiency, nocturia, cramps in the legs and intermittent claudication. The signs that may occur are: (a) bilateral pulsation in the interseapular region; (b) relatively greater pulsation in the upper extremities than in the lower; (c) pulsating, superficial, collateral arteries, coursing obliquely across the back of the thorax, downward toward the spine; (d) dilated intercostal arteries; (e) relatively higher blood pressure in the arms than in the legs; (f) tendency to higher blood pressure in the right than in the left arm; (g) tendency for the right radial pulse to feel larger than the left, and (h) systolic murmurs over areas of intraseapular pulsation, over the collateral arteries, at times over the arch of the aorta anteriorly or over the whole aorta posteriorly.

McIntosh (*Am. Heart J.* 1926, 1:735) gives a detailed description of a case of "Cor Biatratum Triloculare" in a male infant five weeks old. The following anatomical anomalies were present:

Three cardiac chambers, two auricular and one ventricular, mitral atresia, absent interventricular septum, hypertrophied pulmonary artery becoming the descending aorta through a patent ductus arteriosus, extreme hypoplasia of the aorta, solitary (left) coronary artery, bicuspid aortic valve, accessory pulmonary vein leading from the upper portion of the right lung to the superior vena cava, and finally, an anomalous communication between the left auricle and the superior vena cava.

Schlaepfer (*Arch. Int. Med.* 1926, 37:473) refers to 19 cases of chronic and acute arteritis of the pulmonary artery and patent ductus arteriosus which have been collected from the literature. The author added another case to this group, which showed pulmonary arteritis with thrombotic occlusion of the pulmonary valve and a patent ductus arteriosus, without additional valvular lesion, in a child of 8 years.

Wilson and Grant (*Heart*. 1926, 12:295) report a case of congenital heart disease in a female infant 14 months old. The patient was markedly cyanotic and had clubbed fingers and toes. There was cardiac enlargement, congestive failure, and a systolic murmur and thrill over the precordium. Heart block (2 to 1) was demonstrated by electrocardiogram. The pulse was regular at 66 per minute. The child died suddenly a few weeks later. The case is of particular interest, since none of the 14 reported cases of congenital heart block have been accompanied by autopsy findings. Postmortem examination in this case showed absence of the interventricular septum, the A-V bundle "reduced to a number of fine strands which pursued their course to the ventricle incased in dense fibrous tissue and accompanied by veins."

Coronary Disease Including Arteriosclerotic Heart Disease

De La Chapelle (*Am. Heart J.* 1926, 1:315) states that in a total of 16,059 autopsies, 20 cases of spontaneous rupture of the heart have been collected, an average of 1 to every 853 necropsies. Fourteen cases of spontaneous rupture of the heart are described and analyzed, and the condition is referred to as being frequently overlooked. Twelve of the 14 subjects were males, and 11 of the patients were from the laboring class. The average age was 63, with a range of from 43 to 81 years. The predominant factor in all of the cases was arteriosclerosis. Syphilis was not the etiological factor in a single case of the series. "A thrombus was found in 12 of the cases—86%. The ramus descendens of the left coronary artery was thrombosed in nine instances, the main trunk in one, the circumflex branch in one, and the right coronary in one. Nine,—65% of the heart ruptures followed a state of acute infarction. Complete rest, induced by giving large doses of morphine is the treatment indicated."

Graves, (*Texas State J. Med.* 1926, 22:395) after a brief historical survey of cardiac infarction, points out the important factors concerning etiology, pathology, signs, symptoms, treatment and prognosis of this important condition.

Krumbhaar and Crowell (*Am. J. M. Sc.* 1925, 170:828) present the results of a clinicopathologic study based on 22 unpublished cases of spontaneous rupture of the heart and 632 collected from the literature. Their own series was divided into the following types: (a) coronary sclerosis and thrombosis with myocardial fibrosis and necrosis, 9 cases; (b) coronary sclerosis only with myocardial fibrosis and necrosis, 5 cases; (c) coronary sclerosis only with myocardial fibrosis, 2 cases; (d) no evidence directly referable to the coronary arteries, 4 cases.

Nazum and Hagen (*Am. J. M. Sc.* 1926, 171:185) have collected 320 cases of spontaneous rupture of the heart from the literature, and have added 5 cases of their own. They state that this condition most often follows obstructions of the coronary artery and that coronary thrombosis invariably results in infarction of that portion of the heart wall supplied by the obstructed vessel. Classification of the symptoms, according to their incidence, is given, and particular attention is directed to etiology and pathology.

Wolff and White (*Boston M. & S. J.* 1926, 195:13) report data concerning 23 autopsied cases of acute coronary occlusion based on 19 cases of coronary thrombosis and 4 cases of coronary embolism. They suggest the term "acute coronary occlusion" as including all cases of sudden closure which generally result in cardiac infarction. They emphasize the following points: "As a rule the clinical picture is distinctive and should be easy to recognize. However, the triad of pain, pulmonary and gastro-intestinal symptoms does not always occur nor are the characteristic cardiac and pulmonary features always sufficiently marked to make recognition certain, unless great care and detail are given to the examination. Pain may not occur, or dyspnoea may be the presenting or only symptom; the patient may remain up or about during the attack. Rarely the pain is intermittent and not constant. Collapse may be the only initial symptom. Congestive failure, very shortly following anginal pain is presumptive evidence of the existence of coronary occlusion. Impairment of reserve following anginal pain has the same significance, and occurs in practically every case of coronary occlusion. In many of the cases the attack begins while the patient is in bed,—resting, sleeping, convalescing from an operation, or confined to bed for some other condition. The onset may follow an infection. In New England, most of the cases begin in the months of October to April inclusive; in our series all but one case began in these months. The apparent rapid recovery in a short time is

a feature of special interest, and one of great importance to the patient. Peripheral embolism occurred in about 10 per cent. of our cases, cardiac infarction in 74 per cent., pericarditis in 48 per cent., and cardiac aneurysm in 13 per cent. The differentiation from angina pectoris offers no difficulty as a rule. There is an intermediate group, however, in which prolonged pain is associated with some other mechanism than organic coronary obstruction, or else, if such does exist, the adequacy of the collateral circulation or the size of the vessel occluded precludes infarction or extensive infarction so that the usual clinical picture of extensive coronary occlusion is lacking."

Endocarditis

Harmer (*Heart*, 1926, 12:371) examined 467 patients with aortic valvular disease during an investigation of the etiology of aortic regurgitation. He considered 50 per cent. of all cases of pure aortic regurgitation are syphilitic in origin, and 17.4 per cent. rheumatic. Between the ages of 20 and 35, 44 per cent. of cases of pure aortic regurgitation are rheumatic in origin and 10.7 per cent. are syphilitic. From 35 to 40, 14.3 per cent. of cases are rheumatic and 40.5 per cent. syphilitic; while over 40 years of age, only 5.2 per cent. of cases are rheumatic and 71.3 per cent. syphilitic. Syphilis is of most importance as an etiologic factor in patients over 35 years of age, because syphilitic aortitis, and hence aortic regurgitation, is not pronounced enough to cause cardiovascular symptoms until from 20 to 25 years have elapsed from the infection. Rheumatism is of most importance as an etiologic factor in patients under 35, because rheumatic fever is essentially a disease of young people and cardiovascular symptoms due to rheumatism appear on the average 11.5 years after the attack of rheumatic fever.

Lewis and Zotterman (*Heart*, 1926, 13:193) described an instance of annular edema of the skin, occurring in a case of infective endocarditis, and suggested that a poison was introduced into the skin at the central points of the original crops of nodules and that this poison once introduced, gradually spread radially into the skin.

Oppenheimer (*Bull. Johns Hopkins Hosp.*, 1926, 38:372) suggests that a review of the literature on subacute bacterial endocarditis indicates that in 95% of the cases the streptococcus viridans is the etiological factor, while the Pfeiffer bacillus is responsible to a large extent in the remaining 5%. The case reported resembled subacute bacterial endocarditis of the streptococcus viridans type. Blood cultures prior to the day before death were negative. The last culture taken, however, showed a growth of *B. influenzae*. Pathologically, the myocardium showed a fine scarring. Chronic fibrous thickening with some areas of calcification were evident in the

aortic valve. The vegetations were large thrombotic masses containing large numbers of Gram negative minute rods.

Ruiz and Garcia (*Rev. Med. Lat.-Americana*, 1926, 11:2053) in a study of 402 out of 447 fatal cases of puerperal fever showed that these included 8 cases, (1.99%), of secondary malignant endocarditis. The puerperal mortality at Rosario (1900-1925) was 1.71 per thousand births. Labor and abortion share the responsibility about equally. In the cases of endocarditis, the streptococcus was usually the infecting agent. Seven of these cases referred to ended fatally after an average duration of twenty days. In two a persistent ductus arteriosus was present.

Thayer presents "Studies on Bacterial (Infective) Endocarditis" (Baltimore, Johns Hopkins Press, 1926). The subject is treated in a most interesting and constructive manner.

White (*Am. J. Dis. Child.*, 1926, 32:536) reports on endocarditis in early childhood and includes many detailed case reports in his paper. After reviewing the literature and commenting on the available necropsy findings, he concludes as follows: "Endocarditis in infancy is rare, but even during the first year of life it may occur, and when it does it appears to be more often associated with infection of 'septic' nature rather than with rheumatic infection. . . . Acute articular rheumatism and chorea are very rare in infancy, but increase progressively in frequency after the age of 2 years. It is to be remembered that often very mild rheumatic infections and even rheumatic carditis alone may occur in early childhood. . . . Endocarditis after the age of 2 years becomes more common, and is much more likely to be associated with rheumatic rather than with septic infections as the child grows older. . . . Many cases of endocarditis in early childhood are of unknown cause, and doubtless account for much of the chronic valvular disease of obscure etiology found in older children at school age and after, and in young adults. It is probable that the largest percentage of these doubtful cases may result from septic infection in infancy or afterward. . . . Young children with rheumatic endocarditis rarely die, and so necropsy findings revealing early or relatively slight mitral valve involvement are rare. Clinically one finds the loud systolic murmur of mitral regurgitation often preceding the diastolic murmurs of mitral stenosis and of aortic regurgitation in date of discovery."

Functional Disorders of the Heart

Viko (*Am. Heart J.*, 1926, 1:539) points out the possibility of the association of cardiac neurosis and rheumatic valvular heart disease. His report deals with 23 such cases in which rheumatic valvular heart disease was associated with cardiac neurosis. The etiology of the neuroses was given as follows: Neurotic family history, 6 cases; neurotic personal history, 5 cases; sex con-

flicts, 2 cases; mental and emotional strain, 4 cases; illness, 2 cases, maternal anxiety, 3 cases; suggestion from the doctor, 8 cases; doubtful, 6 cases; injury, 1 case; and war experience, 1 case. Reference is made to the importance and difficulties in the treatment of these cases.

White (*Am. Heart J.* 1926, 1:527) analyzed the records of 1,500 consecutive private patients who had consulted him because of cardiac symptoms or signs, in order to determine the absolute and relative incidence of functional disorders of the heart. In this group there were 36.2% who had functional disorders of the heart without any demonstrable evidence of structural change. "Of those functional disturbances more often found without than with clinical evidence of organic heart disease in this series, effort syndrome is most common and occurs five times more often in the "functional" cases; premature beats sufficient to attract attention come next; and finally paroxysmal tachycardia, which is found twice as often without as with clinical evidence of organic cardiac disease. Functional systolic murmurs alone, cardiac phobias, marked sinus arrhythmia, sino-auricular tachycardia and sino-auricular bradycardia are less often seen but together make an appreciable percentage of the whole series. Of those functional disturbances more often found with than without clinical evidence of heart disease, auricular fibrillation (paroxysmal as well as constant) and angina pectoris are the most common and important. Both of these conditions do occur occasionally, however, without any obvious cardiac disease. Auricular flutter is rare. Heart-block, congestive failure, and pulsus alternans rarely if ever occur without evidence of serious heart disease."

(To be continued)

THE NECESSITY OF WEARING GOGGLES

A MANDATORY ruling requiring every employee in an industrial shop to wear goggles while at work was advocated at the meeting in Chicago, Oct. 14, by Harry Guilbert, Director of Safety of the Pullman Company, in an address before a joint session of the National Safety Council and the National Committee for the Prevention of Blindness. Addressing safety engineers, industrial physicians, oculists and others concerned with the prevention of blindness who are gathered here for the first national conference on this subject, Mr. Guilbert revealed that such a mandatory rule is enforced in all the repair shops and yards of the Pullman Company, and that as a result, the eyes of approximately a thousand of their men have been saved from serious injury or destruction.

"During the past 12 years," Mr. Guilbert said, "I have tried every conceivable method

known to human ingenuity to get men to wear goggles, including spectacular bulletins, horrible examples, pleading and threatening; in fact, practically every known method of persuasion or education, with very small results and often none at all. It is my firm conviction that the goal for which we are striving will never be attained until every industrial employee is required to wear goggles while at work on penalty of dismissal."

As indications of the economic reasons for drastic measures to prevent industrial eye injuries, Mr. Guilbert declared: "In Pennsylvania alone the sight of 6,842 eyes has been completely destroyed in industrial accidents since 1916. From January 1st, 1927, to date, 383 eyes have been made useless through accidents in the industries of Pennsylvania ranging from coal mining to restaurant work. In one year the employers of Pennsylvania paid more than \$800,000 in compensation for eye injuries and this represents a total economic loss of close to \$5,000,000.

"The situation in New York State is even worse. The employers of this one state paid \$1,700,000 for eye accidents last year. On the basis of the National Safety Council's estimate that the true cost of industrial accidents is five times the amount of the compensation payments to employees, the eye hazards of industrial occupations in New York State alone costs that state—the employers, the employees and the public—more than \$8,000,000 in one year.

"The most difficult part of safety engineer's job is to persuade workmen to protect their most valuable asset—their sight. The repair shops of the Pullman Company are the only shops where goggles are worn universally, from president down to office boys or visitors who may come into the plant for just a few minutes. This has been accomplished in the face of ridicule, opposition, ignorance, indifference and the lack of cooperation on the part of the workmen themselves.

"In the Pullman Company," Mr. Guilbert said, "we have spent about \$75,000 for eye protection. No sane person will question this expenditure because it prevents loss of sight and saves money; it means better work and more of it.

"Let the person who declines to wear goggles in an industrial plant consider this one fact; 40,000 glass eyes are imported by the United States each year; they are works of art and sometimes hard to distinguish from the real thing; they are good to look at, but impossible to look through. You can not see a thing with a glass eye."—*The Joint Conference of The National Committee for the Prevention of Blindness and the National Safety Council in Chicago, October 14, 1927.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 13461

HEART AND STOMACH TROUBLE

MEDICAL DEPARTMENT

A German of eighty, until two years before admission a chef, entered through the Emergency Ward October 16 complaining that his "heart and stomach troubled him." He was very senile, with language difficult, so that the history is not altogether reliable.

Three months before admission he began to have gradual onset of moderate inconstant dyspnea on exertion, swelling of the feet and ankles, fullness across the epigastrium, and hacking cough which frequently caused pain in both bases in the axillary line and across the lower front of the chest. He had no hemoptysis, sputum or night sweats. Since the onset he had had progressive loss of appetite, constipation, incontinence of urine and feces, and occasional vague discomfort and some gas after eating. The incontinence was present in some degree before the present illness. For two months his stools had been triangular in shape and almost constantly black. He had nycturia and burning micturition each once or twice a week. His urine had been reddish, he thought with blood, several times during the illness. Since the onset he had been increasingly unsteady on his feet, especially in the dark. His legs were weak and somewhat numb to the hips. He had some vertigo when upright. For two or three months his mouth had been dryer than usual. His throat was now sore on the right.

He was so senile that it was impossible to get a satisfactory past history. His family history was good except that in thirty-nine years of married life his wife had no pregnancies. The cause of her death was unknown. He remembered no real illnesses, and had always been healthy except for a slowing up for the past few years. For a year he had been getting deafer and his vision had been blurred.

Clinical examination showed a fairly well developed and nourished old man propped up in bed, restless. There was questionable facial paresis. The skin was atrophic. The mucous membranes were pale. There were pea-sized axillary and inguinal glands. The teeth were gone. The spine showed moderate kyphosis. The chest was barrel shaped. Expansion was poor.

The left base showed dullness, diminished tactile fremitus, and diminished normal breath sounds; no râles. The apex impulse of the heart was not located. The left border of dullness was 9 (2) centimeters from midsternum, the midclavicular line 8.5 centimeters. There was no other enlargement to percussion. The heart sounds were muffled. There were questionable dropped beats. The aortic second sound was hollow. There was an apical systolic murmur. The pulses were normal, the artery walls thickened, the brachials moderately tortuous. The blood pressure was 150/90. The abdomen was pendulous, rather flat in the flanks, with possibly a little fluid. The edge of the liver, tender, was felt four centimeters below the right costal margin. Rectal examination showed external hemorrhoids and redundant rectal mucosa. The testes were atrophic; the left present? The scrotum was pigmented. The hands showed coarse tremor. Heberden's nodes were present. Both shins were pigmented. There were multiple minute varicose of both lower extremities. Pitting edema was marked in the lower legs, moderate in the arms, present over the sacrum. The eyes seemed a little puffy. The pupils were small, fixed? Their reactions to light and distance were questionable. The other reflexes were normal.

The amount of urine is not recorded. The urine was alkaline at the single examination, specific gravity 1.018, a trace of albumin, sediment loaded with leucocytes, debris and organisms. Blood examination showed 12,000 leucocytes, 86 per cent. polymorphs, hemoglobin 90 per cent., red count and smear normal. Wassermann negative. Non-protein nitrogen 49 milligrams.

The orders were for Karell diet, digitalis three grains twice a day, morphia one-sixth grain by mouth every four hours p.r.n. and one dose of one-sixth grain s.c., cracked ice with moderation, cascara sagrada six grains daily.

The temperature was 97.8° to 98.4°, the pulse 100 to 118, the respirations 29 to 30.

The morning after admission the patient was very irrational and excited, and frequently attempted to get out of bed. While he was using the bed pan and the screens were drawn around his bed he attempted to climb over the bed boards and fell to the floor dead.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

After reading the history of the present illness you think offhand that is a cardiac case or a cardiorenal case in an old man. The symptoms of the first line seem to be the most important—dyspnea, swelling of the feet, fullness, and cough.

NOTES ON THE PHYSICAL EXAMINATION

1. He is propped up in bed. He presumably has orthopnea.

2. At his age we do not ordinarily pay much attention to kyphosis.

3. The blood pressure was 150/90. It is very hard to be sure from that cardiac examination whether the heart is the source of his trouble. If he previously had a hypertension and that had come down, it might cause this, I should think.

4. Now we come to the question of his kidneys. You can not really tell much about them. The main fact is that he had a pretty good specific gravity, and that the single record of the other points might go with normal or abnormal kidneys. We have no kidney function test. I hate to stake my diagnosis on as little as that. But on the whole I think it points towards normal kidneys.

5. I have not seen a Karell diet given in this hospital for many years. What they ordinarily mean is a small amount of milk and water, but Karell diet is a small amount of milk and nothing else. I rather doubt that statement.

6. The question of a terminal infection always comes up in cases like this. There is very little in the lung examination to suggest pneumonia. There is dullness and diminished fremitus at the left base, but nothing wrong with the breath sounds. We have no evidence of a cerebral hemorrhage, from which many or perhaps most patients of this type die.

DIFFERENTIAL DIAGNOSIS

He has had distinctly cardiac symptoms for three months, and my guess is that the main cause of death was in his circulatory system, an arteriosclerosis with some hypertrophy and dilatation of the heart, without valve lesions and without anything important in the kidneys. If he has much arteriosclerosis, as I believe, then he will have it in his kidneys.

I think he had a terminal infection, but I cannot say what. His white count is a little high, especially the polynuclear count. He might have a urinary sepsis. He has many leucocytes. There was no thorough urine examination, so we can only mention the possibilities. I do not think I can go beyond that.

A STUDENT: Is it possible to rule out typhoid?

DR. CABOT: I should say so. There is no evidence of fever either present or past. We have a rather high white count, which you do not usually get in typhoid, and typhoid at his age is extremely rare.

A STUDENT: Could you not consider a prostatic involvement?

DR. CABOT: Since we had a somewhat similar case at the Brigham Hospital I am watching a little more than I was. But still I do not see

how we can make that diagnosis. They do not give us any prostatic examination, nothing local, and we have no evidence of metastasis. I do not see how we can say so.

A STUDENT: How do you account for the dark blood in the stools?

DR. CABOT: He may have taken something that made them black.

A STUDENT: They were black for two months.

DR. CABOT: That is what he says. We have to consider the fact that the history may not be reliable, especially when you take into consideration that "triangular shape."

A STUDENT: How about the neurological symptoms? Do you consider them due to old age?

DR. CABOT: Yes. I do not think we have anything pointing to a diagnosis more definite than senility.

A STUDENT: How about apoplexy?

DR. CABOT: That is always possible, but we certainly have very little to suggest it. There is a questionable paresis of the face. In an old man that is very little. Most old men have as much as that, and there are no other neurological signs that point to one side rather than the other. Did you examine the head, Dr. Mallory?

DR. MALLORY: No, sir.

DR. CABOT: We did not get the head, so we will not argue that point.

A STUDENT: Can you give senility as a cause of death?

DR. CABOT: No, I do not think you can. It is not a real cause of death. With a few more things like arteriosclerosis it does very well.

A STUDENT: Do you consider this just a heart case, then?

DR. CABOT: Yes; what do you call it?

A STUDENT: Probably he had a terminal infection?

DR. CABOT: Yes. What terminal infection?

A STUDENT: I should say the lungs—probably a pneumonia.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Arteriosclerotic heart disease.

Myocardial insufficiency.

Arteriosclerosis, general and cerebral.

DR. RICHARD C. CABOT'S DIAGNOSIS

Arteriosclerosis.

Arteriosclerotic heart disease.

Hypertrophy and dilatation of the heart.

Arteriosclerosis of the kidneys.

Terminal infection.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion.*

Tuberculous pericarditis.

2. *Secondary or terminal lesions.*

Miliary tuberculosis.

Arteriosclerosis.

Syphilitic aortitis.

Collapse of the lower lobe of the right lung.

Anasarca (moderate degree).

Arteriosclerosis of the kidneys.

DR. TRACY B. MALLORY: There was a greatly thickened pericardium, the combined thickness of the two walls being over a centimeter; in places they were interadherent; in other areas both surfaces were covered with loose fibrin and caseous material. It was a tuberculous pericarditis, and the entire body was shot through with miliary tubercles.

The right pleural cavity contained about 200 c.c. of fluid. The left contained about 400 c.c.

The right lung was essentially negative, except for the miliary tubercles. In the left lung there was a collapse of the left lower lobe. This apparently was due to the fact that the branch of the left bronchus leading to the lower lobe was pressed upon by large tuberculous glands in the hilus region.

It was impossible to separate the major part of the pericardium from the heart. The total weight of the heart, plus the pericardium, was 800 grams. The myocardium was pale, with numerous small fibrous scars in it. The valves were essentially negative except for a slight degree of calcification at the base of the aortic cusps. The ascending aorta was slightly dilated and inelastic, otherwise normal in appearance. The descending thoracic aorta showed very marked pitted scars and rugae, and microscopic examination confirmed the diagnosis of syphilitic aortitis.

The gall-bladder was shrunken and atrophied.

The kidneys were small, irregular, the capsules adherent. The cortex was shrunken. Microscopic examination showed fibrosis of a few of the glomeruli and some areas of atrophy, not however of a very severe degree.

I think the interesting thing is the terminal miliary tuberculosis, which I believe is a fairly common terminal event in elderly people, although it is not generally recognized as such in this country. In Europe they say that tuberculosis of the senile period is almost identical in all aspects with tuberculosis of infancy, and miliary tuberculosis is extremely common as a terminal event in elderly people. That was the case here.

CASE 13462

REPEATED CONVULSIONS WITH ACUTE INFECTION—CAUSE?

CHILDREN'S MEDICAL DEPARTMENT

A girl eighteen months old entered August 23. The chief complaints were diarrhea, vomiting and acidosis.

August 9, two weeks before admission, when quietly riding along on pillows in the back seat of an automobile, she had a tonic convulsion and was taken to a hospital with a temperature of 104°, unconscious. The convulsion lasted according to her parents twenty minutes. It was not preceded by clonic convulsions, did not start in one extremity. She did not cry out before it, did not clench her teeth or bite her tongue. She frothed at the mouth. Her eyes turned upwards. Her mouth was open. During the convulsion she was pale. A blood examination at the hospital was normal. She was discharged two days later without a diagnosis. The day of discharge she developed a rash which was called "German measles." She apparently did not have any temperature. She was ill for three days, but not in bed. During the illness she had a slight cough. She was inoculated against whooping cough July 24. Four days after the convulsion she vomited her lunch. Her mother thought this was due to a mild attack of whooping cough. August 16 and 18 she vomited again and was pale and weak. She vomited nearly every day after this, and by the 19th and 20th was vomiting everything. She was given glucose injections and retained them. On the 18th she began to have diarrhea, one very watery movement a day. Her mother then noticed that her breath smelt sweet. On the day before admission she seemed quiet and retained about 400 cubic centimeters of citrocarbonate. The morning of admission the physician said the child was entirely normal. That morning and twice in the afternoon she vomited. At three o'clock she had another generalized tonic convulsion lasting eight minutes, instantly relieved by immersion in hot water. She slept half an hour. On admission to the **Emergency Ward** she had a third convulsion.

She was normally delivered at full term, was breast fed for ten months and was overweight. At a year she weighed 22 pounds. Her best weight was 28, July 29. Her present weight was 24. In November, nine months before admission, and again the following May she had carbon monoxide poisoning with entire recovery. She had had no other illnesses. She had been fed on grade A milk, not boiled. Orange juice was started at six months and cereals at eight months. She had not had cod liver oil.

The family history is unimportant.

Clinical examination showed a very pale, dehydrated child with marked acetone breath and convulsing. The mouth was dry, the tongue coated. The ear drums were slightly reddened but showed no bulging. There was flaring of the costal margins. The lungs showed impaired percussion note over the right base posteriorly and many râles throughout both chests. There was thickening of the ends of the long bones. The pupils reacted sluggishly to light. The knee-jerks could not be obtained.

Specific gravity of urine 1.008 to 1.011, diacetic acid at 2 of 3 examinations (8+ to 1+), acetone at all (14+ to 3+), 2 to 3 leucocytes per high power field at 2 sediment examinations. Blood 9,200 leucocytes, polynuclears 51 per cent., hemoglobin 70 per cent., reds 4,780,000, some achromia and polychromatophilia, no marked change in size or shape. Wassermann negative. Throat culture: streptococci, no diphtheria bacilli. Intracutaneous human tuberculin negative twice. Schick test negative.

X-ray examination showed the hilus shadows on both sides considerably increased in prominence. There was rather fine mottling extending from the hilus to the upper portion of both lung fields, especially the right.

Temperature 99° to 101.2° with a terminal rise to 106.3°, pulse 130 to 158, respirations 28 to 40.

Orders. August 23. 5 per cent. glucose nasal drip, 15 drops per minute, on two hours, off two hours. August 24. Mead's half skim milk 1 tablespoonful, boiled water 2 ounces, 16 calories per ounce, give two ounces every four hours. Calcium lactate 15 grains four times a day. Rectal tap water 2 ounces every two hours. August 27. Caffein sodium salicylate 3 grains every two hours for collapse. Atropin sulphate 1/600 grains s.c.

At admission the child had two convulsions that lasted about five minutes each. She was given 420 cubic centimeters of saline subpectorally and went to sleep.

August 26 her temperature, which had fallen from 100.2° to 99°, rose again. She vomited a little and had twitching of the left hand off and on. She stiffened out once in a short convulsion. That night the lungs were clear. There were no reflex changes or stiff neck. The right ear drum was red and bulging. Paracentesis was done and pus obtained. Beginning at half past three the next morning she had several slight convulsions for an hour. She was very weak and did not respond at first to caffeine. Later her pulse and color improved. Her mouth twitched on the right side, a few minutes later on the left. At half past seven her eyes were dilated and fixed to light. The extremities were cold and spastic. A lumbar puncture gave clear fluid which flowed freely but not under increased pressure; cell count 2 lymphocytes, total protein 22 milligrams per 100 cubic centimeters, sugar 55 milligrams per 100 cubic centimeters, colloidal gold 0000000000, Wassermann negative.

At 10 o'clock there was Biot's breathing. The pupils were contracted. There was no response to atropin. At noon she died.

DISCUSSION

BY ARTHUR BATES LYON, M.D.

NOTES ON THE HISTORY

Citrocarbonate is a proprietary preparation.

It is an alkali and a solid, and I do not know how much the patient got. It is put into a solution.

The physician who thought she was entirely normal was either rash or very optimistic.

This history is not conspicuous for chronological order, but the essentials are that the child started with a convulsion, fever, and rather high temperature about two weeks before admission. Then she got better. Three days later she had a rash called German measles, and also she had evidently been suspected of having whooping cough and had been inoculated. Then there was repeated vomiting, diarrhea, and unquestionable acidosis, as shown by the sweet breath, etc. It would not require much evidence to convince us that she has acidosis, after the repeated vomiting.

If this weight is correct she has lost a good deal.

We do not know any more than the record states about the carbon monoxide poisoning. If it is true that she had had such poisoning, it is quite possible that she had damage to the central nervous system. It takes about eight minutes of asphyxiation, I think, to do damage to the cortical cells or the cells of the lenticular nucleus. As regards the medulla it is a little longer, twenty minutes probably. But in the light of these convulsions one wonders if she has had any damage to these brain cells.

The causes of convulsions of course are many. By all odds the commonest cause in a baby of this age is tetany or spasmodophilia. But against this being tetany is the fact that this is in August. We expect it rather in the winter. It is comparatively rare to find it in the summer. Sometimes the acute infectious diseases, pneumonia, scarlet fever, and with exceptional rarity meningitis, begin with convulsions. The fact that she had a high temperature might suggest the onset of an acute infection. However, against that is the fact that she recovered so far as one could tell within two days after the original convulsion. Whooping cough was mentioned; apparently it was suspected. Whooping cough can cause convulsions, but as a result of intracranial bleeding from spasms of coughing. So far as the story goes she had had no such paroxysms of coughing.

There is strictly no evidence for meningitis. Furthermore, with this convulsions are apt to be a rather late accompaniment instead of the initiatory symptom.

Infantile paralysis comes to mind, but infantile paralysis is very rarely ushered in with convulsions. She showed within two weeks after the initial convulsion no sign of paralysis. In the majority of cases the paralysis comes within the first few days,—the largest proportion within one, then gradually shading down. But to go for a period of two weeks without paralysis, if we assume this to be all one illness, would be very rare.

The gastro-intestinal symptoms may be due

to trouble with the digestive tract itself or may be a parenteral infection and this a manifestation of it.

We do not know whether the milk was pasteurized or not. Most of it is. One simply thinks of the possibility of tuberculosis,—infection entering by way of raw milk.

NOTES ON THE PHYSICAL EXAMINATION

The first sentences shed no light on the etiology of the condition. They simply mean that she has vomited and lost fluid by means of the loose movements, and the acetonemia is secondary to that.

We can say definitely that there is a mild degree of otitis media.

We know that this child has rickets. Tetany or spasmodophilia is much more frequent in the rachitic than in the non-rachitic.

From the lung examination we can say that at least the child has bronchitis. Percussion low down over the right back, unless done with care, is not very reliable. We are over the region of the liver, and care must be observed that we are not dealing with liver dullness. More than that, the record says "impaired percussion note"; it does not state that they considered it with certainty dullness.

I doubt if the failure to obtain knee-jerks has much significance. It often takes a deal of patience to elicit them in infants and small children.

The diacetic acid is exactly as one would expect,—diminished as they get more fluid and glucose into the child. The acetone is parallel to the diacetic.

In unexplained temperature of children, especially girls, one always looks for pyelitis. Two to three leucocytes per field is not sufficient to make that diagnosis. It is of course true that the evidence of pyelitis in the form of abundant pus is not found in the beginning of the illness, but this has been running sufficiently long so that considerable pus ought to show if the child were really suffering from pyelitis.

There is nothing very striking in the blood findings. At this age the lymphocytes would ordinarily slightly outnumber the polynuclears. There is certainly no marked degree of anemia.

Nothing is said in the physical examination about any obvious pathology in the throat. Streptococci can be cultured from many normal throats, and without other backing this culture does not seem to me particularly significant.

The negative tuberculin test is of course suggestive. However, it can be said that in the presence of an active miliary tuberculosis the tuberculin reaction is sometimes negative. Neither are we told the strength of the test—one to one thousand, one to five hundred?

MISS PAINTER: The first time one to one thousand, the second time one to five hundred.

DR. LYON: That is rather against the presence of an active tuberculosis.

In this X-ray we certainly have not the picture of definite solidification. We have not the diffuse mottling that we should expect with miliary tuberculosis. If the child has even a mild degree of whooping cough the glands at the hilum of the lungs can be thickened. It does not mean necessarily that there is any other involvement of the lung tissue. It is possible that there are small areas of bronchopneumonia in those lungs. It is not the picture, to my mind, of miliary tuberculosis.

The respirations were not especially high at any time.

The nasal drip was unquestionably to combat the acidosis. If given without intermission the child will reject it.

They are obviously underfeeding the child, but the main need of course is the fluid. Also to increase the fluid she was given a rectal tap. She got fluid by nasal drip, by rectal tap, and under the skin. That should have been temporarily efficient in combatting the acidosis.

A treatment which aims towards ketosis is sometimes very helpful in epileptic convulsions. Their continuance in the presence of a ketosis, here involuntary, is against these convulsions being epileptic.

"The lungs were clear" I take to mean that no râles and no other physical signs of trouble in the lungs were found at that time. It is by no means proof that the lungs can show no pathology.

Obviously there is an acute purulent otitis media.

There is nothing very sharply localizing about these symptoms. There has been nothing since the beginning.

The protein in the spinal fluid is normal, the sugar rather below than above the normal figure.

After some difficulty—it is not a common term—we found Biot's breathing to mean the breathing that is ordinarily or sometimes associated with meningitis,—a series of irregular respirations followed by an interval of ten to thirty seconds without respirations, then rapid respirations beginning again. Occasionally we see that same type of breathing in a normal child asleep, and it is not so far as I know particularly significant. Evidently the observation was taken as meaning that there might possibly be present a meningitis.

In a younger baby the tenseness of the open fontanels might have indicated it.

DIFFERENTIAL DIAGNOSIS

We can say the child had rickets. She had acute otitis media. She had an acute upper respiratory infection. And there one has, to my mind, to stop. I cannot see how one can commit oneself definitely as to what one will find in the central nervous system. As to the lungs,

the evidence of bronchopneumonia is suggested but by no means definite. Sometimes one cannot differentiate in these children between acute non-specific bronchopneumonia and bronchopneumonia of tuberculous origin.

I think we have no proof that the child had tuberculous meningitis. Whether there was any brain injury as a result of the carbon monoxide poisoning I do not know.

In some ways this is a very unsatisfactory case, because the more we think about it the less we arrive at a definite conclusion. Whether the convulsions were purely reflex or whether there is actual trouble with the nervous system it is for the pathologist to tell us.

X-RAY INTERPRETATION

The findings are those of enlargement of the hilus glands with apparent infiltration of the lung fields, especially the right. The process is probably of infectious origin.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Bronchopneumonia.
Convulsions.

DR. ARTHUR B. LYON'S DIAGNOSIS

Rachitis.
Acute otitis media.
Convulsions. Cause?
Acute respiratory infection, probably bronchopneumonia.

ANATOMIC DIAGNOSIS

Bronchopneumonia.

DR. T. B. MALLORY: I do not know that we can settle much. The head was not opened. Fortunately a piece of the spinal cord was taken out through the abdominal incision, and that was negative.

The only positive finding at post-mortem was a bronchopneumonia scattered equally throughout all the lobes.

DR. LYON: More than the X-ray indicated?

DR. MALLORY: Yes. There was no evidence of tuberculosis, and if there was any lesion in the central nervous system it must have been limited to the cranial cavity at least.

A PHYSICIAN: When was the X-ray taken?

MISS PAINTER: August 24.

DR. LYON: That was the day that the child came in, and three days before she died. But the night she died the house officer could not find anything in the lungs. Of the cause of the convulsions you do not know any more than we?

DR. MALLORY: I am afraid not.

MISS PAINTER: Does the fact that the attack came on in the automobile suggest carbon monoxide poisoning? Are children any more susceptible after repeated attacks?

DR. LYON: If the automobile were saturated with carbon monoxide gas somebody else ought to have shown it too. I do not know that having

been so poisoned once means any greater likelihood to succumbing again. It is a curious story.

A PHYSICIAN: Have you any idea in what percentage of cases the diagnosis can be made of positive tuberculosis of the mediastinum? I have heard discussions about it.

DR. LYON: You will find two schools among pediatricians. Some are quite dogmatic and say they can spot it almost every time, and others are very skeptical. Of course if a youngster of this age, eighteen months, is the victim of tuberculosis the chances are that he will have an acute miliary tuberculosis rather than any of the more chronic types.

I do not know—I am not satisfied in my mind—as to why this child had repeated convulsions. Convulsions often usher in pneumonia,—more often lobar than bronchial. They do not as a rule, in my experience at least, keep on. It is too bad that we did not have an observation on the central nervous system.

HARVARD MEDICAL SCHOOL NEWS

THE Warren Anatomical Museum, internationally famous, stands today as the best of its type. It forms an integral part in the teaching program of the medical students. Dr. Canavan, curator, regards it as a clearing house for the storage of valuable specimens, and while it is styled a museum, its essential purpose is that of teaching.

A recent innovation is the installation of tanks in which pathological specimens are kept. The specimens are chosen for typical lesions and year by year as they deteriorate are replaced by fresh specimens from hospitals. The tanks, being open at all times, give the student the opportunity to become familiar with the recognition of lesions, which he will meet later.

The museum at present contains over twenty thousand specimens of which fifteen thousand are cataloged. To these are constantly being added typical and atypical lesions as they appear at autopsies. Physicians and surgeons are urged to contribute specimens of interest.

Besides the pathological specimens many historical instruments are exhibited. At present there is a display of pictures of the older surgeons in the United States and England. An addition to the Museum was the resurrection of the phrenological collection from storage. The study of phrenology preceded the localization studies of brain functions, a matter of historical interest only.

The Museum is the center of many activities in that the Boston Medical History Club and the Massachusetts Medico-Legal Society hold meetings in its rooms. Until the medical library is available journals and other literature are accessible for study.

The Museum is open week days from 9-5 except on Saturdays when it closes at noon. Visitors are invited at these times.

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RE-ORGANIZATION OF BOSTON'S TUBERCULOSIS PROGRAM

THOSE who are interested—as all should be—in the prevention and control of tuberculosis will find much encouragement in the *Monthly Bulletin* of the Health Department for September, 1927. The Division of Tuberculosis of the City of Boston was created by city ordinance on April 1, 1927 and the Boston Sanatorium at Mattapan was made a part of the City Hospital, under the jurisdiction of the City Hospital Trustees. Admission of patients to the Sanatorium was placed in the hands of the Division of Tuberculosis. On April 1, sixty beds in the institution were occupied by cases belonging properly in state institutions; these cases, that is had no settlement in the Commonwealth and were properly state charges. Forty additional cases were “arrested” and no longer a menace to the public. There were 109 vacant beds at Tewksbury and 128 Boston cases at Rutland and North Reading—a number five times in excess of Boston's quota. In Boston were many cases requiring sanatorium treatment. The Rutland waiting list was approximately 160, of which approximately 30 were Boston cases. This meant that after cases were transferred

to the institutions where they belonged a decided shortage in beds still exists for Boston, for Boston's average number of deaths from the disease is 659, and since the bed capacity for the municipality should be a bed for each death, the city was still 237 beds short of the required number. To aid in decreasing this shortage it was suggested by the Commission that the practice of employing ex-patients as orderlies at the institution be discontinued, this releasing a number of beds, and that by a change in the plumbing at the Children's Building that building could be made to receive from 35 to 40 adult patients.

The first part of the program consists in segregating the case which is a menace to the public, and in caring of the sick tuberculous patient. The second part is a preventive program centering on the child population, one activity in this regard being the opening of prevention on the roofs of the South End, North End and East Boston Health Units. Associated with this effort were classes for mothers.

Another feature of the program was the decentralization of the clinic at 57 East Concord Street, by establishing examination clinics in addition in the West End, the North End, East Boston and South Boston. These examinations are conducted by a corps of 11 doctors headed by Dr. Cleaveland Floyd as chief examiner. Day and evening service is given in each section. X-ray outfits have been set up in four of the examining centers. The field nursing program has been changed by the transference of the 34 nurses and two supervisors under the Boston Sanatorium Trustees to the nursing division of the Health Department, of which the entire force of 110 nurses now do tuberculosis work with their other activities.

CALIFORNIA FRUIT GROWERS TO RID THE WORLD OF ACIDOSIS

THE JOURNAL, in quixotic manner, has of late taken many a tilt at divers journalistic windmills whose water is pumped with the wind-torn sails of fraudulent medical advertising. Advertisements of quack medicines and spurious forms of medical treatment are direct reproaches to the dignity of a so-called free press and common decency forces us to stand firmly and consistently against them. There is, however, in addition to the frankly indecent in medical advertising, a large and growing type of popular and attractive advertising, freely admitted to the best journalistic society, (and well able to pay the price of admission) which is built upon the health motif and rallies to the health slogan. These are the foods, the shoes, the chewing gums, the tooth pastes, the germicides, the toilet preparations that preserve the bloom of youth, that build bone, provide vitamins, strengthen and beautify the gums, prevent pyorrhea in four out of every five, and banish that

unmentionable touchstone of the social bankrupt—halitosis.

To our mind these opulent hangers-on of society, covered with the cloak of respectability that Big Business lends, insult our intelligence to the same degree that the black sheep of their family, the quack medicines, arouse our righteous wrath. Many of their claims are based upon frank untruths or upon fake premises. They implant in the mind the suggestion of ill health and promise relief from it. Under the thin guise of promoting public health they foster psychoneurosis. They put new wine in old bottles by discovering the titles of diseases and fitting a set of symptoms to them, with the broad suggestion that the world is suffering from them.

Particularly insulting to the standards of the medical profession is a recent broadcast of the California Fruit Growers Exchange, of Los Angeles, which, in an engaging manner and with the utmost naiveté, offers over 38 million pages of advertising for the sole purpose of sending patients to the doctors, first instilling into their minds the idea that they have "acidosis" for which the doctor, of course, will prescribe California-grown fruit. A full page sample advertisement is submitted which lists, for the benefit of the ultimate consumer (of orange juice) the following common symptoms of "acidosis": headache, sour stomach, biliousness, nausea, children's "upset stomach," nervousness, sleeplessness, high blood pressure, acid perspiration, acid mouth, acetone uria (sic!) and acid urine. This list certainly justifies the diagnosis of the California Fruit Growers Exchange of acidosis in approximately 85,000,000 people of the United States who are philanthropically urged to go to a doctor and get a prescription for orange juice, lemon juice, or fruit salad.

A full page sample ad of such rot is further submitted, which, the California Fruit Growers Exchange avers, is the first of 6 full-page ads to appear in the *Journal of the American Medical Association*. We trust that our national journal will immediately and indignantly deny that its pages are being bought by any corporation for the purpose of foisting a diagnosis of acidosis on 85,000,000 people.

EXHIBITION OF WORKS OF ART BY DOCTORS

THE announcement on the part of certain physicians here in Boston of their intention to hold an exhibition of works of art by medical men of New England excites our interest; and we, remembering the success of similar exhibitions in Paris and in New York City, strongly incline to the opinion that the exhibition to be held here will also be successful.

As we view it, the project has many advantages with few, if any, real objections. It is true that many people will think that doctors, be-

longing as they do to such a serious and demanding profession as that of medicine, ought not personally to engage in an occupation such as that of art, which in a certain sense makes its special appeal only to the emotions.

When one looks at the matter from a different point of view, however, one begins to realize that the participation on the part of doctors in the attempt to produce works of art (objects of beauty, often combined with use) is a perfectly legitimate and natural ambition, especially so long as this participation is looked upon as a pastime or as the indulgence of a hobby; and not as a serious undertaking. Doctors are only human after all, and they like the rest of mankind need, especially in these strenuous times, relaxation and rest—a need which often finds its most perfect fulfillment in their being able to do exactly what they most want to do. In filling in these gaps which occur, or should occur, from time to time in everybody's life, some prefer one thing and some another. Some want simply to rest, while others prefer to engage in some activity or other. This may be in any direction, according to the fancy of the individual, and, if it is not in the form of some physical activity in the open, or within doors, it is not unlikely to be in the direction of literature, music or art. If any doctor, then, elects to pass his leisure time in the practice of art, it is perfectly natural and reasonable. That he should want to join others similarly interested is also natural, and an exhibition merely represents the getting-together of those whose interests are in the same direction.

It is also quite possible that many others would think that doctors who have passed their lives in studying and in practicing their profession, could not, if they would, produce anything really worth while in the way of art. This, of course, is quite another matter, and is only to be determined when the product of their effort is placed on view.

We hope that the public and professional artists will view this venture of the doctors with interest, and will realize that the more the physicians try their hands at art, the more appreciative of the work of professional artists they will be.

The exhibition will be open from 7 to 1 P. M. November 30th, and daily thereafter from 10 A. M. to 10 P. M., except Sundays, and including December 14.

We are glad to see that physicians are taking a practical interest in art, and they have our best wishes for a signal success in their exhibition.

DOCTORS NEED INFORMATION

IT may be that some physician may not know that the Boston Better Business Bureau of 201 Devonshire Street is publishing a bulletin regu-

larly in which information with respect to questionable advertising is set forth.

History shows that many physicians are more trusting than wise in dealing with promoters.

Everybody who has money to invest can read this bulletin to advantage.

The Boston Better Business Bureau has accomplished a great deal and is doing good work.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

SMYTH, D. CAMPBELL, A.B., M.D. Harvard Medical School 1909, Associate Laryngologist at the Massachusetts General Hospital, Associate Oto-Laryngologist at the Massachusetts Eye and Ear Infirmary. Address: 375 Commonwealth Ave., Boston. Associated with him is

SCHALL, LEROY A., M.D. Jefferson Medical College 1917, F.A.C.S., Instructor in Laryngology at Harvard Medical School, Assistant Surgeon in Oto-Laryngology at the Massachusetts Eye and Ear Infirmary, Assistant in Laryngology at the Massachusetts General Hospital, Visiting Laryngologist at the New England Peabody Home for Crippled Children, Consulting Oto-Laryngologist at the United States Marine Hospital No. 2, Chelsea. Address: 520 Commonwealth Ave., Boston. Their subject is: "Pneumophyl By Lipiodol." Page 891.

LENNON, GEORGE T., A.B. Boston College 1890, Agent and Clerk of the Haverhill Board of Health and a member of the Executive Board of the Massachusetts State Association of Boards of Health. His subject is: "A Report of the Infantile Paralysis Epidemic in Haverhill, Mass." Page 916. Address: Board of Health, Haverhill, Mass.

BIRNIE, JOHN M., A.B., M.D. Harvard Medical School 1906, F.A.C.S., President of the Massachusetts Medical Society and Secretary of the New England Surgical Society. Surgeon, Springfield Hospital. His subject is: "Registration of Nurses." Page 920. Address: 14 Chestnut St., Springfield.

MUDD, SEELEY G., B.S., M.D. Harvard Medical School 1924, Resident in Cardiology at the Massachusetts General Hospital 1926-1927. Address: 1206 Pacific Mutual Bldg., Los Angeles, Calif. Associated with him is

SPRAGUE, HOWARD B., A.B., M.D. Harvard Medical School 1922, Assistant in Medicine at Harvard Medical School, the Massachusetts General Hospital, and the Harvard Graduate School of Medicine, Visiting Physician to the House of the Good Samaritan. Address: 270 Commonwealth Ave., Boston. Their subject is: "Cardio-Vascular Review for 1926." Page 922.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

Is it justifiable to treat Toxemia of Pregnancy Without or With Convulsions in the home if a hospital is available?

This question is perhaps best answered in the report of the Committee for the Study of Recurrent Toxemia of Pregnancy of the Obstetrical and Gynecological Section of the Massachusetts Medical Society read by the Chairman at the June Meeting 1927, as follows:

"We believe that the house is no place for a woman suffering from toxemia of pregnancy of whatever degree. It is not possible to treat toxemia successfully in the home with sufficient surety. Every case should be hospitalized. You cannot stop eclampsia supervening in the home. Toxemias cannot be saved in hospitals in respectable numbers if sent in after convulsions. These figures prove this. Eclampsics will die in the best hospitals and under the best specialist attention if sent in too late. Every woman with elevated pressure and albumen may have a convulsion. Only the well-equipped hospitals in each district with laboratories, with specialists in obstetrics are suitable for the care of Toxemia of Pregnancy. If a patient is sent to one of these before convulsions she is practically certain to go home well, if after, she stands a great chance of dying. That these eclamptic deaths are in a great measure unnecessary deaths is true and they are a reflection on our state. But not only must prenatal care be utilized but the doctor in the field must realize that he is unfitted by training and totally hampered by his environment from properly treating a disease which is nearly preventable by the simple expedient of immediate unloading to a place prepared for its treatment, but which developed, carries with it an even chance of death even there. It is not criticism of the profession at large we have in mind, it is the fact that to properly handle a grave toxemia, or an eclamptic a specially prepared room, properly guarded, and the immediately available service of from three to six specially trained persons are necessities to do the best for the patient. And that in the light of present knowledge even our best is often not good enough."

A study of the mortality statistics of the larger cities in Massachusetts shows that most toxemias that die do die in hospitals. The fact however, that as one glances through these statistics, toxemia is a so frequent cause of death would seem to show that either the patients are hospitalized after convulsions or too near the convulsive state. It must be said that when a pregnant woman shows albuminuria and elevated blood pressure she should be sent to the hospital for safety to herself and her baby.

Questions of a similar nature to the above will be discussed in the JOURNAL each week. They may be addressed to Dr. Frederick J. Lynch, Clerk of the Committee, in care of the JOURNAL, and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

MISCELLANY

PHYSICIANS' ART EXHIBIT

(NOVEMBER 30—DECEMBER 14)

THE Committee in charge of this exhibit wish to request that all physicians who are willing to contribute examples of their own work to the exhibition, and who have not already signified their intention to do so, will please communicate with the Committee, at the Boston Medical Library, 8 The Fenway, as soon as possible, giving the *kind, number and size* of the objects they propose to place on view.

Articles intended for exhibit should be sent to the Committee at the Library, carriage prepaid, as soon as convenient, but in any event not later than Saturday, November 26. The name of the sender, as well as the title of each object, should also be clearly indicated. It is necessary that all pictures be *framed* before being sent.

CAMPAIGN FOR EARLY DIAGNOSIS OF TUBERCULOSIS IS ANNOUNCED

THE National Tuberculosis Association announces that it is planning a nation-wide campaign to interest the public at large in the Early Diagnosis of Tuberculosis. The month of March, 1928, has been set aside as the period for concentrated effort. Approval and coöperation of the American Medical Association and the American Public Health Association have been secured.

Plans for the campaign include presentation of the subject before district medical societies, staffs of public health departments, and private health organizations. Arrangements have also been made with a national outdoor advertising agency for the display of thousands of illustrated billboard posters bearing the legend

You May Have Tuberculosis

Watch for these danger signs

- too easily tired
- loss of weight
- indigestion
- cough that hangs on

Let Your Doctor Decide

A general circular entitled, "Let Your Doctor Decide," has been prepared by a committee of medical experts and will be widely distributed. A motion picture for physicians is in prepara-

tion. Another motion picture for lay audiences will also be shown widely.

A general allotment of free literature for the campaign is promised through the Massachusetts Tuberculosis League for distribution throughout the Commonwealth.

TWENTIETH ANNUAL CHRISTMAS SEAL SALE TO BEGIN AT THANKSGIVING

SIXTY-EIGHT million Christmas Seals of the National Tuberculosis Association have been received by the Massachusetts Tuberculosis League and distributed to its twenty-eight affiliated organizations for the Twentieth Annual Seal Sale beginning Thanksgiving Day. This amount exceeds the number of Seals used last year by two millions.

District one day conferences of the volunteer and paid workers of the tuberculosis associations were recently held at Providence, Springfield, Greenfield, Boston, Manchester, N. H., and Portland, Maine. They were presided over by Frank Kiernan, President of the New England Tuberculosis Conference and Executive Secretary of the Massachusetts Tuberculosis League. Philip P. Jacobs, Ph.D., Publicity Director of the National Tuberculosis Association, and Mrs. May F. Sinks, Seal Sale Adviser of the National Staff, spoke on the technique of the Seal Sale and the progress of the nation-wide campaign against the disease.

As in previous years the American Red Cross and the National Tuberculosis Association have made an agreement whereby the Red Cross Roll Call will be carried on from November 11th to Thanksgiving Day and the Seal Sale from November 25th until Christmas. The agreement provides that the Roll Call is not to be carried on after Thanksgiving and the Christmas Seals are not to be placed on sale before Thanksgiving.

The Christmas Seal Sale has been conducted annually since 1907. In that year the amount raised was \$3,000. The growth of the sale was rapid from the first year and in 1926 the amount raised was \$5,050,000 in the United States. Of this latter amount \$232,000 was raised in Massachusetts.

OPENING OF THE PAN AMERICAN HOSPITAL IN NEW YORK

THE dedicating exercises of the Pan American Hospital for Spanish speaking patients at 163 East Ninetieth Street, New York City were conducted October 17, 1927.

Speakers referred to the good influence of this hospital in promoting amicable relations between this country and Latin America.

Richard P. Hobson of fame in connection with the war with Spain was especially emphatic in paying tribute to the good will which is being

developed between Spanish speaking people and this country.

Dr. Franklin Martin and Dr. Damas de Rivas also spoke. Dr. de Rivas has been professor of Tropical Medicine at the University of Pennsylvania and will be Director of Pathology at the new hospital.

A SYMPOSIUM ON FEELINGS AND EMOTIONS

An international symposium on feelings and emotions was held at Wittenberg College, Springfield, Ohio, October 19-22. Many eminent scientists discussed the feelings and emotions as related to educational procedure. This is considered one of the most remarkable gatherings in the history of psychology and may also prove to be one of the most outstanding events in the history of education.

Boston was represented by Dr. Walter B. Cannon, who spoke on "Neural Organization for Emotional Expression," and Dr. Morton Prince, whose subject was "Can Emotion Be Regarded as Energy?"

Educators from France, Germany, Denmark, Esthonia, Italy, England, Switzerland, Austria and Russia addressed the meetings.

ADDRESS ON THE LAW AND ETHICS OF MEDICAL CONFIDENCES. DELIVERED BEFORE THE MEDICO-LEGAL SOCIETY ON JUNE 23, 1927.—LORD RIDDELL. *LANCET*, LONDON, 1927, I, 4

The rule as to medical secrecy arises out of the fiduciary relationship which exists between doctor and patient, which dates back to the time of Hippocrates. While in both law and ethics medical confidences are regarded as sacred, there are certain circumstances under which this secrecy may be broken. The legal position in England is stated thus:

1. A doctor, being in a fiduciary capacity, must preserve his patient's confidences unless relieved from the obligation by some lawful excuse.

2. Legal compulsion or the patient's consent are lawful excuses, and the performance of a moral or social duty may also be a justification. Protection of the doctor's interests may also justify disclosure.

3. There is no legal privilege for medical confidences. If called as a witness a doctor must answer such questions as may be put to him by the court.

4. A doctor shares with other citizens the duty to assist in the detection and arrest of a person who has committed a serious crime.—*Veneral Disease Information*, U. S. P. H. S.

THE INCREASE IN DIPHTHERIA MORBIDITY AND MORTALITY DURING THE FIRST SIX MONTHS OF 1927

The increase in diphtheria morbidity and mortality in New York City during the first six months of 1927 impresses upon us the need of immunizing all young children with toxin-antitoxin.

Those who have been watching the death rate have noticed that the number of cases and deaths from diphtheria that occurred since the beginning of the early winter were greater than during the corresponding part of last year. This was a cause of great surprise to us; and we expected a further decrease in these rates. The mortality statistics show that the decrease during the past seven years has been irregular, as shown by the following table:

Year	Cases	Deaths
1919	14,014	1,239
1920	14,166	1,045
1921	15,110	891
1922	10,427	874
1923	8,050	547
1924	9,687	714
1925	9,051	663
1926	7,531	477

This marked though irregular decrease has been attributed partly to the general campaign against diphtheria, and partly to the immunization with toxin-antitoxin.

Those who have been studying the diphtheria situation know that there are several factors which influence the incidence of this disease, as a result of which there is an increase over a period of two or three years, and then a decrease. There is every reason to believe that the slight increase during the first half of 1927 is simply due to one of those unknown factors which in the course of every year or two cease to exist. Then those influences which are steadily resulting in an improvement will make for a rate lower than the previous record. For this reason the full value of toxin-antitoxin cannot be determined in New York City simply by the number of cases of diphtheria and by the number of deaths occurring in any one year. This is doubly true, for in spite of the large number of children who have been immunized, only a small percentage of the younger children have received this protection. It is well known that most of the cases and practically all of the deaths occur among pre-school children. The immunization of this group by the private physician and by the Health Department Inspectors has only begun.

Interesting data have been found by the Research Laboratory through an examination of one hundred and fifty cases of children reported by physicians to have had diphtheria. It will be noted in the table given below that only two or three per cent. of the one hundred and fifty

cases received toxin-antitoxin; that in none of these cases had the three months elapsed which is usually required for immunity to develop, and that one of the three children received only two injections. It is almost certain that one case did not have diphtheria, as it was not so diagnosed by the attending physician until the report of the examination of the culture was received. It is well known that only about half of the culture from doubtful cases, which appear positive on morphological examination, are virulent when tested on guinea pigs.

REPORT OF AN INVESTIGATION OF 150 DIPHTHERIA CASES
TO DETERMINE THE PERCENTAGE HAVING HAD TOXIN-
ANTITOXIN PREVIOUS TO PRESENT ILLNESS

July 9, 1927

Age	Mild	Moderate	Severe	Total
Up to 5 years	36	23	16	75
			1 T. A. (a)	
6-10 years	32	11	9	52
	1 T. A. (b)	1 T. A. (a)		
11-15 years	8	1	2	11
16 years and over	4	7	1	12
Total cases	80	42	28	150
Cases of T. A.	1	1	1	3
Percentage				2%

—Bulletin, New York City Department of Health.

NOTES FROM THE SERVICE HOSPITAL.
EXECUTIVES HELD IN CONNECTION
WITH THE CONVENTION OF THE
AMERICAN HOSPITAL ASSOCIATION

DECLARING that the word "incurable" should be removed from the dictionary, Dr. Ernst P. Boas, Director of the Montefiore Hospital of New York, discussed chronic diseases and convalescent work at one of the sessions of the hospital executives October 12, 1927, in connection with the convention of the American Hospital Association.

"In the present state of medical knowledge," Dr. Boas said, "the pronouncement of the sentence 'incurable' on a patient places a serious responsibility on the physician and implies a greater knowledge than he possesses. The acceptance of the verdict by the patient and the community not only cruelly quenches all hope, but checks every further effort at physical rehabilitation.

"Yet, how often such diagnosis is mistaken. Not infrequently an incurable can be restored to comparative health and economic usefulness.

"Another misconception that has retarded the awakening of the community conscience in regard to the chronic sick is the confusion of old age with chronic disease. Old age is a relative concept. To children all adults seem old. As we advance in years our ideas as to the particular time of life that marks the onset of senescence are constantly changing.

"The term 'senile,' just as the term 'incurable,' involves an assumption of inevitableness which leads these victims of disease to be regarded as hopeless derelicts."

Criticism of increasing hospital costs made by Dr. Morris Fishbein of Chicago, editor of The Journal of the American Medical Association, was attacked by Dr. Malcolm T. MacEachern of Chicago, Associate Director of the American College of Surgeons.

Dr. MacEachern said that hospital costs for the patient had not increased in the proportion that hospital expenses had mounted.

"Hospital costs have advanced 135 per cent. since 1913," Dr. MacEachern said. "But charges to patients have advanced only 65 per cent. There is scarcely a hospital that does not provide excellent moderately priced accommodations for its patients."

Dr. Joseph C. Doane, Medical Director of the Philadelphia General Hospital, became President of the Association today, and the following officers were elected, their terms to begin at the next convention:

Dr. Louis H. Burlingham, St. Louis, Mo., President; F. O. Bates, Charleston, S. C., First Vice-President; Miss Louise M. Coleman, Boston, Second Vice-President; Dr. Frederick C. Bell, Vancouver, B. C., Third Vice-President; Asa S. Bacon, Chicago, Treasurer. Trustees-elect are Richard P. Borden, Fall River, Mass., and Dr. Nathaniel W. Faxon, Rochester, N. Y.—New York Times.

ENTERIC FEVER SITUATION IN THE
WORLD

THE following report on enteric fever in the world is taken from the September 15 issue of the *Monthly Epidemiological Report of the Health Section of the League of Nations Secretariat*:

The enteric fever situation was on the whole favorable in July in most European countries. In England the incidence decreased toward the end of July, while fewer cases than usual were reported in July in Denmark, Norway, Sweden and Finland. In England and Wales, there were 321 cases during the four weeks ended August 20, as compared with 406 cases during the previous four weeks, although the incidence ordinarily increases markedly at this time of the year. In Germany, fewer cases were reported in July and early August than during the corresponding months of any previous year. It is to be noted in this connection that exceptionally cool and wet weather prevailed over the northern part of Europe in June and early in July.

Further south in Europe the incidence may be characterized as normal, except in Italy, where it was above the normal (2,100 cases during the four weeks ended July 3, as against

1,274 cases during the corresponding period of the previous year). In the Serb-Croat-Slovene Kingdom, the incidence was also higher than last year and there was an outbreak at Belgrade, where 48 cases were reported during the first week of August; it seems to have been promptly controlled, as there were only 10 cases the following week. The crest of the seasonal curve for enteric fever is not reached until September or October, but its low prevalence in summer in many countries is probably of good augury for the autumn.

In the United States, 3,878 cases were reported during the four weeks ended July 30, as compared with 3,493 cases during the corresponding period of 1926.

In Canada, the enteric fever situation is entirely dominated by the formidable epidemic at Montreal. This epidemic, which appeared to be coming to an end in the latter half of April, broke out afresh early in May. There were nearly as many cases in the second wave as in the first. A recrudescence of this magnitude is a most unusual phenomenon.

From the beginning of the epidemic and up to July 9, 4,849 cases were reported and 489 deaths were ascribed to typhoid fever. Notifications numbered 2,604 in March and April, which may roughly be taken to correspond with the first wave, and 2,242 in the second wave between May 1 and July 9. If the deaths reported up to May 7 are taken as corresponding to the first wave, there were 251 deaths during the first and 234 during the second wave. Deaths due to the first wave occurring after May 7 will probably be approximately compensated by those who may have died after July 9, returns for which have not as yet been received. This would give a case mortality rate of 9.6 per cent. in the first and 10.4 per cent. in the second wave.

The circumstances which produced the second wave were evidently already in operation in the latter half of April, when the notifications showed only the tail-end of the first wave. It may be noted, in this connection, that, in 1926, there were 256 deaths from typhoid fever in the Province of Quebec (203 in the remainder of Canada) and that only 571 typhoid cases were reported.

It is confirmed that the origin of the epidemic was due to milk-borne infection.

The proportion of hospitalized patients is a little over 33 per cent. of the total. Convalescents are discharged when two examinations of faeces and of urine made at intervals of not less than three days have given negative results.

A high portion of the cases were among children; 35.5 per cent. of the cases for which the age is stated were under 10 years of age and 32.2 per cent. between 10 and 20 years.

It is seen that in Europe the incidence of enteric fever in general increases from north to south; in England and in the Scandinavian

countries, the mortality is of less than 1 per 100,000 inhabitants; in German, Dutch and Swiss towns it is mostly between 1 and 2 per 100,000, exception made of the explosive outbreak at Hanover, when the death rate rose to 60.9 in 1926. In southern and eastern Europe the death rates from enteric fever are mostly between 10 and 20 per 100,000: in certain Spanish and Italian towns they exceed 30. At Athens the rate was 39.3 and at Salonica 44.1 in 1924.

The mortality in European towns was on the whole lower in 1926 than in 1925, with exception of Spanish, Italian, Polish and Ukrainian towns, where the rates were higher.

Similarly in the United States, the mortality from enteric fever is mostly below 2 per 100,000 in the northern towns, but exceeds 10 in most towns of the South. It was on the average lower in 1926 than in 1925.

MORTALITY IN 1926 IN LARGE TOWNS OF THE UNITED STATES GROUPED ACCORDING TO GEOGRAPHICAL DIVISIONS

	Population (in thousands)	Deaths	Rate per 100,000
New England	2,522	38	1.5
Middle Atlantic	11,399	241	2.1
South Atlantic	2,226	120	5.4
North Central	10,596	192	1.8
South Central	2,314	294	12.7
Rocky Mountain and Pacific	3,431	68	2.0

In sub-tropical and tropical countries, enteric fever is even more prevalent than in Southern Europe or in the Southern States of the United States. The mortality per 100,000 inhabitants in 1926 was thus: 38.9 in Cairo, 82.4 in Teheran, 68.9 in Calcutta, 29.1 in Singapore, 35.9 in Batavia and 29.1 in Manila. It is probable that in several of these towns the certification of causes of death is less accurate than in European towns and the rates may therefore in some instances be too low.

In South America, the incidence of enteric fever is lowest in the southern temperate climates and generally increases northward. The death rate from this cause per 100,000 was in 1926: 4.4 at Buenos Aires, 14.2 at Montevideo, 41.4 at Sao Paulo, 8.5 at Rio de Janeiro (low for the latitude), 33.7 at Lima and 92.8 at Bogota.

RURAL HOSPITALS ENDOWED BY THE COMMONWEALTH FUND

BELOIT, Kansas and Wauseon, Ohio have been selected as locations for the fourth and fifth rural hospitals in the series which the Commonwealth Fund is helping to build as a contribution toward the improvement of health and medical conditions in country districts. Three such hospitals have already been awarded to Farmville, Virginia; Glasgow, Kentucky; and Farmington, Maine under a cooperative program whereby the Fund donates two-thirds of

the cost of construction and equipment while the local community guarantees the remainder and undertakes the expense of operation.

In view of the selection of one New England and two Southern communities for the first three hospitals, midwestern states were given the preference in locating the next two projects. Fifteen applications from nine states were carefully studied by the rural hospital division of the Fund before Beloit and Wauseon were given the awards. The program contemplates the placing of these hospitals in rural areas where they will serve a surrounding district with a radius of approximately thirty-five miles. The communities chosen must give indication of real need of outside assistance and at the same time have sufficient economic resources to make possible the fulfillment of their part of the agreement. Favorable conditions for the development of sound public health work and public health nursing are also considered in making the awards.

Beloit, a community of 3315 population, is the county seat of Mitchell County in north central Kansas. A federal highway known as "the Main Street of the United States" passes east and west through the town which is likewise served by branches of the Missouri Pacific and Union Pacific Railroads and by radiating country and township highways. The population of the entire area which will benefit by the proposed hospital is estimated at 78,000. Ample assurance that the community will support the project has been given through the Chamber of Commerce, the Rotary Club, and the Woman's Civic Club, as well as by county and city authorities.

Wauseon, with a population of 3100, is the county seat of Fulton County, thirty-five miles from Toledo in the extreme northwestern corner of Ohio. An area including in whole or in part four Ohio counties and three Michigan counties and having a population of 97,000 will be served by the proposed hospital. The district is typically rural with diversified farm industries and with economic resources considerably above the average. Wauseon is already well established as a center of transportation, trade, and medical practice but its present twelve-bed hospital is reported to be inadequate in size and equipment for the needs of the community.

NOTES FROM THE PUBLIC HEALTH CONVENTION AT CINCINNATI

HEART disease, with its formidable toll of more than 100,000 American lives annually, and measles, one of the most infectious of diseases, are largely the result of common colds, declared two physicians at the fifty-sixth annual

convention of the American Public Health Association.

While Dr. Henry Albert of Des Moines, Iowa, State Health Commissioner, said that the majority of deaths from heart disease occur after the age of 45, Dr. George C. Ruhland, director of the Syracuse (N. Y.) Health Demonstration, asserted that 70 per cent. of the deaths from measles were among children less than 3 years of age.

Both physicians stated that the diseases often resulted from colds and presented problems of such magnitude as to demand the utmost from all health workers to do everything possible toward their prevention.

Dr. Albert asserted that heart disease now led the list of the causes of death in the United States and made the subject of his discourse the question: "Has the peak of heart mortality been reached?"

He said that while it was difficult to answer that it was probable that the disease would not increase at as rapid a rate in the next ten years as in the last decade.

"Heart disease is often caused by repeated infections, such as the common cold, which do injury to this organ," he said. "It is sometimes traced to diseases common to childhood, which have done damage to the heart several years previous. Scarlet fever maims, although the permanent injury may not appear until years later.

"From 15 to 25 per cent. of all cases of heart disease are apparently due to rheumatic fever, a disease which occurs early in life, in children about 10 years of age, and which almost always does permanent damage to the heart. To prevent a further increase of heart disease we must educate people that rheumatic fever is an infection and somewhat communicable and we must take precautions to prevent its spread.

The convention opened with an address by Dr. Charles V. Chapin, President of the association and Health Commissioner of Providence, R. I., who told of the advance in preventive medicine since the organization was founded in 1872 and of the aims in prolonging life and conserving wealth by avoiding sickness.

Dr. B. Franklin Royer of New York City, of the National Committee for the Prevention of Blindness, presented a paper on the conservation of eyesight.—*N. Y. Times*.

There were one thousand and forty-one delegates in attendance at the above-mentioned meeting held October 21, 1927.

This is reported by the Association as one of its best meetings.

The next Convention will be held in Chicago in 1928.

DEATHS

WARREN—DR. JOHN COLLINS WARREN, formerly Moseley Professor of Surgery in Harvard Medical School, promoter of the building of the school on Longwood Avenue, and of the Cancer Commission of Harvard University, died at his home in Boston, November 3, 1927, at the age of 85.

CLARK—DR. MARY WILSON CLARK, widow of Dr. Joseph Colby Dorr Clark of Medford, a former Fellow of the Massachusetts Medical Society, died at her home in Medford, December 18, 1923. She joined the State medical society at the same time as her husband, in 1897.

CORRESPONDENCE

THE LAW GOVERNING THE REGISTRATION OF NURSES AND THE MINIMUM CURRICULUM REQUIRED BY THE BOARD OF REGISTRATION OF NURSES

Mr. Editor:

"The physician is not blameless if his patient suffers from faulty nursing." So said Alfred Worcester thirty odd years ago. Thirty years ago, however, the physician was able to do something about the training of his patients' nurses; he could make sure that an adequate training be given them in the fields in which they must help him. Today he has nothing to say about it. What constitutes an adequate nursing training has been decided for him and enacted into law, regardless of what kind of nurses are needed in the community. The physician is blameless today, therefore, only if he has protested against the demands of the present law—and in the following paragraphs I propose to thus exonerate myself.

I will not discuss the present folly of undertaking to standardize the product. It can't be done, at this time anyway, because the raw material is not yet sufficiently uniform. After another thirty years perhaps we may obtain a generation of standardized young women, each of whose prenatal life was regulated by the maternal perusal of the same popular manual; each of whom began to eat carrots at the same age; who attended the same schools, read the same books, drove the same cars (or aeroplanes); in short, such as will have fulfilled the dreams of every "100% American." As physicians we may not be able to stem the tide towards such undesirable uniformity, yet may we not be able to influence the training of our nurses in such a way that they can better serve the communities in which we and our patients live? Or shall our continued silence give tacit assent to these legislative impositions?

How surprised and delighted some of the larger schools must have been to find that *they* didn't need to readjust themselves in any way to conform to the edicts of the law! Contagious diseases their hospitals always shunned, and henceforth they needed only to arrange for eight paper lectures on the subject! Let George worry about contagious diseases! Now, as every physician knows, the principles of contagious nursing are essential to all nursing. For example, on the pneumonia service at the Boston City Hospital eight years ago it was shown that the different types of pneumococci readily crossed from bed to bed in the open wards. More than half of all human illness is due to infection. Need for the principles of contagious nursing is always present, and these principles can be learned only by practice; not by hearing lectures nor by memorizing the fifteenth chapter of Leviticus. Nothing is more exasperating to the physician than to see an inexperienced nurse attempt the care of a case of communicable disease in the home. It may be true that the prin-

ciples of the care of contagious diseases are embodied in the frequent "isolation precautions" ordered for certain patients in the general wards, but they cannot be nearly so well learned there as in the contagious wards where these principles are enforced throughout. Also, with the intubations, tracheotomies, mastoidectomies, etc., service in the contagious wards, conversely, and much more truly, may be said to embody all other branches of nursing.

The difficulty is not that the law allows a school to shirk this part of its duty, but that the school which thus undertakes to serve its community, in a hospital that cares for all kinds of cases, gets small credit for this part of its work. Instead, arbitrary segregations are demanded; for instance, "No allowance will be made for a mixed service of adults and children." Was there ever a more asinine ruling than this? Anyone familiar with such long convalescences as those of some of the contagious diseases can imagine the propriety, even if legally requisite, of keeping twelve-year-old boys and girls together, or the humanity of segregating a mother from her child. And what would our courts have to say of the constitutionality of a law that requires grouping together patients with different contagious diseases, because, forsooth, they are of the same age? The Attorney-general's office is now backing up the enforcement of just this law! Of course the only penalty for disobeying it is that the school which does so hurts its standing with the Board of Registration of Nurses. But the school that does that sows dissension among its students and graduates, and discourages its prospective applicants, with the result that its service to the community is embarrassed. If the community can provide sufficient wards for the segregation, first of the children, then the men, then the women, and lastly the half dozen or more endemic contagious diseases, the school can so get credit for the work it does. But this means eighteen wards of a fair capacity, for the load is always shifting.

These pediatric requirements are leading to serious difficulties in some communities, the more healthful communities perhaps where the number of hospitalized children is lower in proportion to the adults, and therefore not quite sufficient to provide the required experience for the number of student nurses in use. Schools confronted by this situation find that their students each need perhaps two weeks more experience. Such a school is told to provide this by affiliation, and then the fun begins. There are not enough children's hospital affiliations to go round. Furthermore, no hospital wants to take on a student for a few days' or weeks' affiliation, while a longer affiliation, provided it can be secured, means that the student is spending too much time on one subject.

In other communities the medical nursing requirements are equally offensive. No community should be penalized in having its student nurses refused State recognition because its people house themselves in homes sufficiently decent to be sick in, instead of in tenements from which they must flee in order to be properly fed and cared for. Any community of say twenty thousand people, with its general hospital can be trusted to train its own nurses quite as well as to school its own children. In our medico-social history such names as those of Pasteur, Koch, Jenner, Nightingale, McKenzie and Horatio Adams can be cited as examples of the ability of the smaller communities to take care of themselves. Indeed, Florence Nightingale would not be allowed to take the examinations in Massachusetts in this year of our Lord! Whether or not she could pass them is a different matter. There never was a "small town" school smaller than hers. Draw similar comparisons in non-medical fields and you will also find that the cities lead only in the matter of noise. The fact is, opportunities and circumstances do not make us—we make them.

The education of nurses can hardly be patterned after medical education in general, because it is not underwritten as medical education is. For forty years the student nurses have been used in increasing numbers to supply our smaller communities with nursing service. The machinery by which this service has been utilized has varied in various localities, and has frequently been built up by sacrificing efforts to establish and maintain hospitals, home nursing, district nursing, etc. Many of these establishments must now be scrapped, because by arbitrary rules the existing machinery is legally declared to be inadequate. Graduates of schools which have trained mighty good nurses for now nearly half a century cannot even be examined by the State Board of Registration. They have not the opportunity which their brothers graduating from even Class C medical schools have in the same State.

I do not know who framed the present law, but it is unbelievable that any practicing physician or representative of our smaller communities had anything to do with it. It is a distinct imposition of the will of the urban upon the suburban and rural parts of our Commonwealth, thinly disguised as an "educational reform." It is unthinkable that this law shall be considered final in the wisdom of its provisions, and therefore not subject to modification. So far as I know, no protest has yet been made by the medical profession. Are we blameless or are we not?

Respectfully yours,

DWIGHT O'HARA, M.D.

751 Main Street, Waltham.

NEWS ITEMS

THE OSTEOPATHIC HOSPITAL—One of the few Osteopathic hospitals in the world is to be put into operation in Jamaica Plain on Evergreen Street.

The corner stone was placed on Saturday, November 12, 1927, and the dedicatory exercises were conducted Sunday, November 13.

This hospital will cost about one hundred and fifty thousand dollars and is the first unit in a group which will expand as demands may require. There will be thirty-five beds, and facilities for caring for one hundred out-patients daily.

A campaign for funds is under way to aid in the equipment of the hospital and an endowment.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about Three Hundred Dollars, will be made on July 14, 1928, provided an essay deemed by the Committee of Award to be worthy of the Prize shall have been offered.

Essays intended for competition may be upon any subject in Medicine, but cannot have been published. The essay should represent an addition to the knowledge and understanding of the subject based either upon original or literary research. They must be typewritten, and in English acceptable for publication without necessity for editing by the Committee. Any illustrations should be appropriate and correctly annotated with the text. Essays must be received by the Secretary of the College on or before May 1, 1928.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelop having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the success-

ful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1927 has been awarded to Dr. Emil Bogen, Cincinnati, Ohio, for his Essay entitled: "Drunkenness."

JOHN H. GURVIN, Secretary.

19 South 22nd Street, Philadelphia, Pa., U. S. A.

A HOSPITAL FOR CRIPPLED CHILDREN AS A MEMORIAL TO A SON—A. E. Fitkin, a member of the New York Stock Exchange, has set aside \$1,000,000 to build and endow a hospital and home for crippled children.

The institution will be built on the State highway between Eatontown and Freehold, N. J., in the township of Shrewsbury. It will be known as the Raleigh Fitkin Memorial Institution, commemorating the interest of the donor's son, Raleigh Fitkin, in missionary affairs. The son, who died 23 years ago following an operation for appendicitis, already is commemorated in a hospital for South African natives.—*New York Times*.

THE PAY OF A RUSSIAN DOCTOR—How would you like to be a government doctor away up in Northern Russia? Rhys Williams tells about the doctor up there who vaccinated him. This doctor had handled ninety cases that day.

The doctor has plenty of meat if the hunters have luck. Bread is plenty if an August frost doesn't blight the crops. Then, of course, he has the three dollars a month allowed him by the government—if the government doesn't forget to pay it.—*Patchwork*.

JOHNSON & CO.—The Department of Public Utilities has cancelled the brokerage registration of Elmer M. Johnson, doing business under the name of Johnson & Co., 35 Congress Street, and has issued a finding that Johnson conducted his business as a broker in a fraudulent manner.

SAMUEL MEYERS ARRESTED—News articles of September 19 report the arrest of Samuel Meyers, a registered stock broker in Boston. Meyers was arrested on warrants issued in Maine, charging him with obtaining money under false pretenses and embezzlement.—*Boston Better Business Bulletin*.

PRIZES FOR DR. A. DE AMARAL, DR. A. F. HESS AND DR. P. ROUS—On November 1 the John Scott Medal and \$1000 were presented to Dr. Afranio de Amaral, director of the Antivenin Institute of America, Dr. Alfred Fabian Hess, Clinical Professor of Children's Diseases, Columbia University, and Dr. Payton Rous, Pathologist to the Rockefeller Institute for Medical Research.

Dr. de Amaral has prepared Antivenins of value. Dr. Hess has discovered a method of providing a vitamin factor by the use of ultra-violet rays. Dr. Rous has added to the knowledge of tumor cells of fowls.

The Academy of Natural Science of Philadelphia presented the prizes.

Dr. Rous was ill and unable to receive the award in person.

RETIREMENT OF DR. DOWNING—On September 1, 1927, Dr. Augustus S. Downing, Deputy State Commissioner of Education of New York State, has retired from active duty after serving fifty years in public education work.

Dr. Downing can be credited with the major influence in creating standards of medical education adopted by the State of New York. He is a forceful and ready speaker and has taken a prominent part in discussions with respect to medical education on very many occasions.

RED CROSS "LOAN COW," GREENVILLE, S. C.—The Greenville, S. C., Chapter of the American Red Cross owns a "loan cow" which it lends to poor families throughout the county who are in need of milk. The cow was procured some time ago when there was reported a pitiful case of an entire family destitute and suffering from pellagra. Milk was essential to their recovery, and a cow was bought by popular subscription, to be owned by the chapter and loaned to the family. Since the recovery of the pellagra victims the cow has been loaned to other needy families and has been found to be an asset in the relief work of the Red Cross chapter, which is the only organized relief agency functioning throughout Greenville County.

STATE SUPERVISION OF CLASSES FOR SPECIAL-PROBLEM CHILDREN—Nine States conducted special classes for the care and treatment during school hours of defective or special-problem children. These classes are under the supervision of one or more members of the staff of the State Department of Education. Alabama, Connecticut, Minnesota, New Hampshire, New York, Ohio, Pennsylvania, Wisconsin and Wyoming are the States that reported such service in 1926.—*Bulletin of the United States Children's Bureau.*

MONSOL—News items from London contain reports of an antiseptic extracted from coal tar which is neither irritant to human tissues nor dangerous if swallowed or injected into the blood stream.

Sir Arthur Sloggett, an ex-Army Medical Corps officer, seems to believe in its efficacy. It was discovered by the Mondson Refining Company and the name "Monsol" was adopted by this organization. It is given space in the advertising pages of the *British Medical Journal*.

A CANCER EXPERIMENT—Reports from the Johns Hopkins University Medical School indicate interest in aluminum compounds as therapeutic agents in treating cancer. The work is being carried on under the supervision of Dr. Margaret Lewis.

THE ABRAMS THEORIES—That controversy over the Abrams theories in England still continues is reported in the *British Medical Journal*. Errors often have long long lives which seem to be due to the credulity of those who are inclined to believe in extravagant claims couched in terms which have no scientific meaning.

NOTICES

ATTENTION OF PHYSICIANS

DIAGNOSTIC SERVICE OF THE DEPARTMENT OF TROPICAL MEDICINE OF THE HARVARD MEDICAL SCHOOL

For five years the Department of Tropical Medicine at the Harvard Medical School has offered, free of charge, a diagnostic service based upon laboratory examinations. The Department wishes again to call attention to this service which it continues to offer to physicians. *Clinic facilities are not available at the School.*

Physicians wishing to avail themselves of the service offered should send the material to be examined to Miss Casassa, Secretary of the Department of Tropical Medicine, Building DI, Harvard Medical School, with a note stating what is desired, the source of the material and

any other important facts relating to it. *The telephone number is Regent 2380.*

When it is not practicable to make a diagnosis from material that can be sent in or obtained from the patient at the laboratories of the Department, members of the Clinical Staff may be asked to see the patient in their offices if the referring physician desires it, or the patient can be admitted to a hospital, public or private, for study and treatment.

The Laboratory Staff of the Department of Tropical Medicine includes A. W. Sellards, M.D., Max Theiler, M.D., Joseph Bequaert, Ph.D., entomologist, J. H. Sandground, D.Sc., helminthologist, and L. R. Cleveland, D.Sc., protozoologist; and the Clinical Staff includes G. C. Shattuck, M.D., of the Boston City Hospital and A. A. Hornor, M.D., of the New England Deaconess Hospital.

There is appended a list of diseases in which the Department is interested, and a synopsis of methods of diagnosis which may be employed.

SERVICE FOR TROPICAL DISEASES OF THE BOSTON CITY HOSPITAL

The Boston City Hospital six years ago organized this Service with Dr. George C. Shattuck in charge. Patients are treated either in the Wards or in the Out-Patient Department. Prospective patients destined for this Service need not be citizens of Boston, but every patient should bring to the hospital a note stating that he has been referred to the Boston City Hospital for treatment by the Service for Tropical Diseases.

The ward rate for Boston patients is \$16 per week and for non-residents is \$27.45. Lower rates or free treatment can be obtained in suitable cases through the Superintendent's office at the hospital.

Signed:

RICHARD P. STRONG, M.D.,

Professor of Tropical Medicine of the Harvard Medical School and

Consultant in Tropical Diseases to the Boston City Hospital

Chief of the Sub-Department of Tropical Medicine of the Massachusetts General Hospital.

November, 1927.

LIST OF DISEASES

Explanatory Note: The following list includes those tropical, parasitic, or exotic diseases in which the Department is interested and which may be encountered in Boston. Underlined diseases have been recognized in Massachusetts within recent years. *The Department would be glad to receive specimens or pathological material derived from any of the conditions listed or from other tropical maladies, such as yellow fe-*

ver, in which it is conducting investigations.

Material for laboratory diagnosis can sometimes be collected outside, but in most cases it is desirable that the patient visit the laboratory in order that the specimens required may be collected there. When it is not possible to make

a diagnosis by laboratory examinations only, the patient can be referred to a member of the clinical staff for such additional investigations as may seem necessary. The clinical staff is willing to do this work free of charge when desired; otherwise a suitable charge will be made.

PROTOZOAN DISEASES	LABORATORY METHODS OR MATERIAL REQUIRED
Malaria	
Tertian	Fresh blood or stained smears
Subtertian	ditto
Quartan	ditto
Trypanosomiasis	
African	{ Fresh blood or stained smears
South American (Chagas Disease)	{ Gland puncture; spinal fluid
	{ Animal inoculation
Leishmaniasis	
Kala-Azar	Spleen puncture
Oriental Sore	Scrapings from lesion or tissue sections
South American	
Amoebiasis	
<i>Endamoeba coli</i>	Fresh faeces
<i>Endamoeba histolytica</i>	ditto
<i>Iodamoeba bütschlii</i>	ditto
<i>Endolimax nana</i>	ditto
<i>Dientamoeba fragilis</i>	ditto
Flagellosis	
<i>Giardia lamblia</i>	Fresh faeces
<i>Trichomonas hominis</i>	ditto
<i>Chilomastix mesnili</i>	ditto
<i>Embadomonas intestinalis</i>	ditto
<i>Tricercomonas intestinalis</i>	ditto
Other Protozoa	
<i>Balantidium coli</i>	Fresh faeces
<i>Isospora hominis</i> (coccidiosis)	ditto
SPIROCHAETAL DISEASES	
Yaws (Framboesia)	{ Serum by dark field
	{ Stained preparations
Relapsing Fever	Fresh blood and stained smears
Rat-bite Fever	{ Fresh blood and stained smears
	{ Animal inoculation
Infectious Jaundice	{ Animal inoculation
	{ Pfeiffer's reaction
	{ Examination of fresh urine
HELMINTHIC INFESTATIONS	
Filariasis	
<i>Filaria bancrofti</i> (endemic elephantiasis)	Fresh blood and stained smears
<i>Loa loa</i> (Calabar swellings, etc.)	ditto
<i>Onchocerca volvulus</i>	Lesion examined
Uncinariasis (Hookworm infection)	
<i>Ancylostoma duodenale</i>	Faeces or worm
<i>Necator americanus</i>	
Dracontiasis (Guinea-worm infection)	
<i>Dracunculus medinensis</i>	Examination of lesion or identification of worm
<i>Strongyloides stercoralis</i>	Fresh faeces

Distomiasis (Fluke infection)

Schistosoma haematobium (Bilharziasis)Schistosoma mansoniSchistosoma japonicumClonorchis sinensisFasciolopsis buskiParagonimus westermani (lung fluke)

Urine and faeces

Faeces

ditto

ditto

ditto

Sputum

Taeniasis

Echinococcus granulosusDiphyllobothrium latum ("fish" tapeworm)Hymenolepis nana (dwarf tapeworm){ Pathological material
Complement fixation test and
Casoni skin test

Faeces or worm

ditto

INSECT INFESTATIONS

Myiasis: nose, ear, gastro-intestinal tract, or skin

Chigger, or sand-flea (*Tunga penetrans*)

Acarine dermatomycosis (caused by mites)

Genus *Glycophagus* ("grocer's itch")Genus *Tyroglyphus* ("copra itch")Genus *Pediculoides* ("grain itch")*Leptus autumnalis* (red bug, harvest bug)

Blood-sucking Insect Pests

Larvae identified

Examination of lesion and identification of parasite

ditto

ditto

ditto

ditto

Identification and suggestions for control

FUNGUS DISEASES

Madura Foot

Blastomycosis

Sporotrichosis

{ Fresh and stained preparations
Cultures

ditto

ditto

BACTERIAL DISEASES

Undulant Fever (Malta Fever)Bacterial DysenteryLeprosy

Plague

Cholera

Tularaemia (Deer-fly Fever)

{ Blood cultures
Agglutination test

Agglutination test

{ Examination of lesions
Pathological material{ Cultures from fresh faeces
Animal inoculation{ Cultures from fresh faeces
Agglutination test
Pfeiffer's reaction

Cultures from glands

OTHER DISEASES

Granuloma inguinaleTropical PhagedenaTyphus FeverSprue

Scrapings or tissues

ditto

{ Weil-Felix reaction
Biopsy material{ Fresh faeces examined
Cultures for monilia

When possible a member of the Department would like to visit cases of the following diseases:

Beri-beriPellagraScurvy (in adults)Elephantiasis

Black-water Fever

Dengue

Verruga Peruviana

Oroya Fever

or any acute infection listed above.

UNITED STATES PUBLIC HEALTH SERVICE

CHRONOLOGICAL LIST OF CHANGES OF DUTIES AND STATIONS OF COMMISSIONED AND OTHER OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

OCTOBER 5, 1927

Surgeon L. L. Williams, Jr. Bureau orders of October 11, amended so as to direct him to proceed to Bristol, Pa., before returning to Richmond, Va., in connection with malaria investigations. October 17, 1927.

Assistant Surgeon General F. A. Carmelia. Directed to proceed from Washington, D. C., to Milford, Del., and return, to inspect quarantine tugs under construction at that place. October 19, 1927.

Sanitary Engineer L. C. Frank. Directed to proceed from Cincinnati, Ohio, to Toronto, Canada, to attend meeting International Association Dairy and Milk Inspectors. October 20, 1927.

Assistant Surgeon E. T. Lentz. Relieved from duty flood relief work, New Orleans, La., and assigned to duty at M. H. No. 16, Portland, Me. October 20, 1927.

Assistant Surgeon W. W. Nesbit. Relieved from duty flood relief work, New Orleans, La., and assigned to duty at M. H. No. 19, San Francisco, Calif. October 20, 1927.

Surgeon J. P. Leake. Directed to proceed from Washington, D. C., to Salisbury, Mo., and such places in State of Missouri as necessary, and return, in connection with study of poliomyelitis. October 20, 1927.

Surgeon (R) C. K. Haskell. Relieved from duty Cleveland, Ohio, and assigned to duty at M. H. No. 70, 67 Hudson Street, New York, N. Y. October 21, 1927.

Surgeon (R) J. M. Lowrey. Relieved from duty at Portland, Me., on arrival of Assistant Surgeon E. T. Lentz, and assigned to duty at M. H. No. 82, Norfolk, Va. October 21, 1927.

Surgeon L. R. Thompson. Directed to proceed from Washington, D. C., to New York City and such places as necessary in the State of Connecticut, and return, in connection with studies of industrial hygiene. October 21, 1927.

Chief Pharmacist H. C. Megaw. Relieved from duty at Baltimore, Md., and assigned to duty at the Quarantine Station, Galveston, Tex. October 22, 1927.

Surgeon J. W. Mountain. Directed to proceed from Nashville, Tenn., to Omaha, Neb., and Kansas City, Kans., and return, for conference with hospital authorities and physicians in those cities relative to public health matters. October 22, 1927.

Surgeon W. H. Slaughter. Directed to proceed from Cleveland, Ohio, to Ann Arbor, Mich., and return, for conference with hospital authorities and physicians in that city relative to public health matters. October 22, 1927.

Assistant Surgeon General Thomas Parran, Jr. Directed to proceed from Washington, D. C., to Hagerstown, Md., and return, to represent the Service at the semi-annual meeting of the Medical and Surgical Faculty of Maryland, to be held in that city October 25-26, 1927. October 22, 1927.

Assistant Surgeon General R. C. Williams. Directed to proceed from Washington, D. C., to Philadelphia, Pa., and return, for conference with hospital authorities and physicians in that city relative to public health matters. October 22, 1927.

Chief Pharmacist C. H. Bierman. Directed to proceed from Perry Point, Md., to Washington, D. C., and return, for conference at Bureau. October 24, 1927.

Surgeon Lawrence Kolb. Directed to proceed from Washington, D. C., to Philadelphia, Pa., and New York City, N. Y., and return, in connection with the investigation of narcotic addiction, being carried on by the Public Health Service. October 24, 1927.

Sanitary Engineer L. C. Frank. Directed to stop at Cleveland, Ohio, en route from Toronto, Canada,

to Washington, D. C., in connection with milk studies. October 25, 1927.

Official:

C. C. PIERCE, Acting Surgeon General.

OCTOBER 12, 1927

Assistant Surgeon General R. C. Williams. Directed to proceed from Washington, D. C., to Carlisle Barracks, Pa., and return, to represent the Service at the meeting of the Association of Military Surgeons to be held October 6-8. October 5, 1927.

Assistant Surgeon General F. A. Carmelia. Directed to proceed from Washington, D. C., to Milford, Del., and return, to inspect quarantine tugs under construction at that place. October 6, 1927.

Surgeon E. C. Ernst. Directed to proceed from Washington, D. C., to Carlisle Barracks, Pa., and return, to represent the Service at the meeting of the Association of Military Surgeons to be held October 6-8. October 6, 1927.

Surgeon P. D. Mossman. Directed to proceed from Rolla, Mo., to Indianola and such other places in the State of Mississippi as may be necessary, and return, to investigate suspected cases of trachoma. October 6, 1927.

Acting Assistant Surgeon J. G. Wooley. Directed to proceed from Carville, La., to Fort Stanton, N. M., and return, for temporary duty at U. S. M. H. No. 9. October 6, 1927.

Senior Sanitary Engineer J. A. Leprince. Directed to proceed from Memphis, Tenn., to Cowan, Tenn., October 10, and return, in connection with malaria control work. October 8, 1927.

Acting Assistant Surgeon W. I. Hinkle. Directed to assume charge of the duties at the United States Quarantine Station, Portland, Me., during the absence of the Medical Officer in Charge. October 8, 1927.

BOARD CONVENED

A board of medical officers convened to meet at New London, Conn., October 10, 1927, to determine the physical eligibility of a candidate for temporary commission in the United States Coast Guard. October 8, 1927. Detail for the board: Surgeon C. P. Knight, A. A. Surgeon H. R. Collins.

Official:

C. C. PIERCE, Acting Surgeon General.

NOVEMBER 2, 1927

Surgeon J. W. Tappan. Directed to proceed from Fort Stanton, N. M., to El Paso, Tex., to represent the Service at Medical and Surgical Association of the Southwest, November 2-5, 1927. October 28, 1927.

Associate Sanitary Engineer A. W. Fuchs. Directed to proceed from Biloxi, Miss., to points in Mississippi and Alabama, and return, in connection with milk studies. October 29, 1927.

Acting Assistant Surgeon O. C. Wenger. Directed to proceed from Chicago, Ill., to Des Moines, Ia., and such other places in the State of Iowa as may be necessary, and return, in connection with venereal disease control measures. October 29, 1927.

Assistant Surgeon General F. A. Carmelia. Directed to proceed from Washington, D. C., to Wilmington, Del., for the purpose of effecting delivery of quarantine tug to Marcus Hook Quarantine Station. October 29, 1927.

Surgeon P. D. Mossman. Directed to proceed from Rolla, Mo., to Memphis, Tenn., and return, for the purpose of attending the meeting of the Public Health Section of the Southern Medical Association on November 14-17, 1927. October 31, 1927.

Passed Assistant Surgeon M. V. Veldee. Directed to proceed from Washington, D. C., to Baltimore, Md., and report to Surgeon W. H. Frost for temporary duty. November 1, 1927.

Surgeon R. R. Spencer. Authorized to proceed from Hamilton, Mont., to Pueblo and Denver, Colo., to investigate claims for Employees Compensation Commission. November 1, 1927.

Passed Assistant Surgeon M. V. Veldee. Assigned to duty at Hygienic Laboratory, Washington, D. C. November 1, 1927.

Surgeon C. E. Waller. Directed to proceed from Washington, D. C., to Memphis, Tenn., for the purpose of conferring with Service officers and State and local health officials regarding sanitary measures being applied in the States affected by the recent flood. November 1, 1927.

BOARDS CONVENED

Board convened at Philadelphia Immigration Station, Philadelphia, Pa., for the purpose of reexamining an alien. Detail for the board: Surgeon H. M. Manning, A. A. Surgeon Leon Van Horn, A. A. Surgeon Horace Phillips.

Official:

C. C. PIERCE, Acting Surgeon General.

EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the United States Public Health Service will be held at the following named places on the dates specified:

At Washington, D. C.	February 6, 1928
At Chicago, Ill.	February 6, 1928
At New Orleans, La.	February 6, 1928
At San Francisco, Calif.	February 6, 1928

Candidates must be 23 years and not over 32 years of age.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, Surgeon General.

GOVERNMENT HOSPITALS NEED LABORATORIANS IN BACTERIOLOGY AND ROENTGENOLOGY

APPLICATIONS RATED AS RECEIVED UNTIL JANUARY 7

The United States Civil Service Commission has announced that hospitals of the United States Public Health Service and the Veterans' Bureau throughout the country are in urgent need of laboratorians in bacteriology and roentgenology and that applications for the positions will be rated as received until January 7, 1928.

Salaries are as follows:

Laboratorian (Bacteriology)—Public Health Service, \$1,320 to \$2,100; Veterans' Bureau, \$1,860 to \$2,400.

Assistant Laboratorian (Bacteriology)—Public Health Service, \$1,080 to \$1,320; Veterans' Bureau, \$1,500 to \$1,860.

Laboratorian (Roentgenology)—Public Health Service, \$1,800 to \$2,400; Veterans' Bureau, \$1,860 to \$2,400.

Assistant Laboratorian (Roentgenology)—Public Health Service, \$1,080 to \$1,800; Veterans' Bureau, \$1,500 to \$1,860.

For full information and application blanks (Form 2374) apply, stating the title of the examination desired, to the secretary of the local board of United States civil service examiners at any first class post office, or to the United States civil service district secretary at Boston, Mass., New York, N. Y., Philadelphia, Pa., Washington, D. C., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Louis, Mo., New Orleans, La., Seattle, Wash., San Francisco, Calif., or Denver, Colo.

REPORTS AND NOTICES OF MEETINGS

MEETING OF THE SUFFOLK DISTRICT MEDICAL SOCIETY

THE first regular meeting of the Suffolk District Medical Society for the Autumn was held at the Medical Library on the evening of October 26th, 1927. Dr. Elliott P. Joslin in the chair, after some preliminary business, introduced Dr. John B. Hawes, president of the Boston Tuberculosis Association, who conducted the meeting. Dr. Hawes introduced Dr. Allen Krause of the Johns Hopkins Hospital, Baltimore, as the speaker of the evening.

Dr. Krause is undoubtedly one of the greatest living authorities on the subject of tuberculosis. He spoke clearly and distinctly without manuscript or notes of any kind on the diagnosis and treatment of pulmonary tuberculosis, giving special reference to the opportunities and responsibilities of the general practitioner in this regard. He was opposed to laying too great stress on the ideas of specialism in tuberculosis believing that by the time the patient comes to the specialist the opportunity for early diagnosis and adequate treatment is too often lost. He stated that 85% of tuberculosis cases could be clearly diagnosed by third year medical students providing they were thorough, followed the right methods and took plenty of time. The opportunity for the general practitioner to detect tuberculosis in its early stages and to follow the course of the disease is a tremendous one but it is too often neglected.

Nothing that Dr. Krause said was new, but he presented his subject in the best of English. Looking straight at his audience and taking them into his confidence, he gave his words a meaning which could not have been imparted in any other way. The fact that practically every seat in Ware Hall, and the hall is a large one, was filled, is evidence that the medical profession will gladly turn out to listen to an authority on his subject.

At the close of Dr. Krause's talk there was an interesting discussion which was opened by Dr. Henry A. Christian, Chief of the Medical Staff of the Peter Bent Brigham Hospital. Dr. Christian expressed himself in no uncertain language advocating that it was the duty of every general hospital to accept pulmonary tuberculosis in its wards for disposal and particularly for teaching purposes. He declared that the danger of infection from such a source was a negligible one.

Dr. Frederick T. Lord of the Massachusetts General Hospital, Dr. Joseph H. Pratt of Boston, Dr. Henry D. Chadwick of the Westfield Sanatorium, Dr. Vincent Y. Bowditch, and Dr. Geo. T. O'Donnell of the Boston Health Department, took part in the discussion. Dr. O'Don-

nell, recently appointed Chief of the Division of Tuberculosis of the Boston Health Department outlined his plans and made an eloquent plea for the coöperation and support of the medical profession.

Dr. Krause's presence in Boston was made possible by the offer of the Boston Tuberculosis Association to the Suffolk District Medical Society to provide the best speaker possible for this purpose. Despite the fact that the subject of tuberculosis has not been considered at any meeting of the Suffolk District Medical Society for over 10 years and that such a large audience turned out for this occasion shows that the medical profession is not unmindful of the importance of the tuberculosis problem.

STAFF CLINICAL MEETINGS AT THE BOSTON CITY HOSPITAL

IN addition to the December meeting of the Suffolk District Medical Society on December 28, the Staff of the Boston City Hospital will give four clinical meetings during the winter in the Cheever Amphitheatre of the Hospital. These meetings will be on the last Saturday of January, February, March and April, at 11 A. M.

NEW ENGLAND HEART ASSOCIATION

THE New England Heart Association will meet November 17, 1927, at 8:00 P. M. at the Peter Bent Brigham Hospital. The topic, "The X-ray in Heart Disease."

1. X-ray Evidence of Cardiac and Aortic Diseases. Dr. George W. Holmes, Boston.

2. Orthodiagraphy in Cardiac and Aortic Diseases. Dr. James M. Faulkner, Boston.

3. Roentgen Ray Treatment of Rheumatic Carditis. Dr. Ross Golden, New York.

Discussion to be opened by Dr. M. C. Sosman, Boston.

NEW ENGLAND WOMEN'S MEDICAL SOCIETY

THE Fall meeting will be held on Thursday evening, November 17, 1927, at 8:00 p. m., at 82 Commonwealth Avenue, Boston.

Dr. Allen Greenwood will be the speaker of the evening.

Refreshments will be served. Guests welcome.

E. V. O'NEILL, M.D., *Secretary*.
26 Almont Street, Mattapan, Mass.

HARVARD MEDICAL SOCIETY

THE next regular meeting of the Harvard Medical Society will be held as usual in the amphitheatre of the Peter Bent Brigham Hospital, Tuesday evening, November 22, 1927, at 8:15 P. M. The program follows:

1. Presentation of Cases.
2. Oedema in the Light of Recent Experiments upon the Capillaries. Dr. Cecil K. Drinker.

PERCIVAL BAILEY, *Secretary*.

BOSTON MEDICAL HISTORY CLUB

THE meeting scheduled for November 18 (detailed notice of which appears on page 811, November 3 issue) will be of especial interest in that it deals with the subject of Oliver Wendell Holmes' Medical Writings and Sayings. Place, Boston Medical Library; time, 8:15 P. M.

BOSTON UNIVERSITY

DR. WINFRED OVERHOLSER, assistant professor of psychiatry at Boston University's School of Medicine and director of the division for the examination of prisoners of the Massachusetts department of mental diseases, will speak before the police officer-students in Boston University's "school for police" on the evenings of Nov. 21 and 22, addressing different divisions of the school in turn.

His subject will be the detection of insanity in arrested persons, and the address will deal with the symptoms showing real mental derangement and methods for handling deranged persons.

More than 125 police officers from Boston and surrounding cities and towns have enrolled in the "school for police" this year, Director David Greer, Boston attorney, has announced. The school aims to instruct police in the branches of the law which they should know in order efficiently to perform their duties. Sessions of the school are held in the Boston University school of law building, Ashburton place, and are so arranged that officers on day and night duty can attend the classes.

Arrested persons who act strangely present a problem to the police, Director Greer said in announcing the lectures by Dr. Overholser, and the services of the psychiatrists have been enlisted by the school to explain to the student officers ways of distinguishing whether the arrested person is under the influence of liquor or drugs, or merely faking insanity, or is really suffering from a mental malady.

Dr. Overholser is widely known throughout medical and psychiatric circles as an authority in his field.

SOCIETY MEETINGS

November 4-17—The twenty-first annual meeting of the Southern Medical Association will be held in Memphis, Tenn. Detailed notice, page 372, the issue of September 1.

November 17—Eighty-first Anniversary Meeting of the New York Academy of Medicine. See page 882, issue of November 10.

November 17—New England Women's Medical Society. Complete notice elsewhere on this page.

November 17—New England Heart Association. Complete notice on page 953, this issue.
November 18—Boston Medical History Club. See detailed notice on page 811 of the issue of November 3.
November 18-19—Annual Conference of Secretaries of Constituent State Medical Associations. Chicago. Detailed notice appeared on page 816 of the issue of November 3.
November 22—Harvard Medical Society. Complete notice appears on page 953, this issue.
January, February, March and April, 1928—Last Saturday at 11 A. M. Cheever Amphitheatre, Staff Clinical Meetings at Boston City Hospital.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

January 4, 1928 (Wednesday)—Semi-annual meeting at the Centre Church vestries, Main Street, Haverhill, at 12:30 P. M.
May 2, 1928 (Wednesday)—Annual meeting at 12:30 P. M.
May 3, 1928 (Thursday)—Censors meet for examination of candidates at Hotel Bartlett, 55 Main Street, Haverhill, at 2 P. M. Candidates should apply to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence, at least one week prior.

Essex South District Medical Society

December 7 (Wednesday)—Beverly Hospital. Clinic at 5 P. M. Dinner at 7 P. M.
Dr. P. E. Truesdale, Fall River, "Modern Trends of Medical Practice."
Discussion by Drs. P. P. Johnson and C. H. Phillips of Beverly, 10 minutes each, and from the floor.
January 4, 1928 (Wednesday)—Deer Cove Inn, Swampscott. Dinner at 7 P. M.
Dr. Frank Lahey, "Differential Points of Importance to the General Practitioner in Surgical Diagnosis."
Discussion by Drs. Walter Phippen of Salem and N. P. Breed of Lynn, 10 minutes each, and from the floor.

February 1 (Wednesday)—Council meeting, Boston.

February 8 (Wednesday)—Danvers State Hospital. Clinic at 4 P. M. Buffet supper at 6 P. M., followed by
Dr. Abraham Myerson, "Some Aspects of Mental Hygiene."
Discussion by Drs. W. F. Wood of Hathorne and G. M. Kline of Beverly, 10 minutes each, and from the floor.

March 7 (Wednesday)—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M.
Dr. Henry R. Vieta, "The Acute Infections of the Nervous System," with lantern slides and moving pictures.
Discussion by Drs. W. V. McDermott of Salem and J. W. Trask of Lynn, 10 minutes each, and from the floor.

April 11 (Wednesday)—Essex Sanatorium, Middleton. Clinic at 5 P. M. Dinner at 7 P. M.
Dr. Raymond S. Titus, "Obstetrical Emergencies."
Discussion by Drs. J. J. Egan of Gloucester and A. T. Hawes of Lynn, 10 minutes each, and from the floor.

May 3 (Thursday)—Censors meet at Salem Hospital for the examination of candidates at 3:30 P. M. Candidates should apply to the Secretary, Dr. R. E. Stone, Beverly, at least one week prior.

May 8 (Tuesday)—Annual meeting. Place and speaker to be announced.

Suffolk District Medical Society

Combined meetings of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library, 8 The Fenway, at 8:15 P. M., as follows:

December 28—Medical Section. "Functions and Organization of the Boston City Hospital."
January 25, 1928—General meeting in association with the Boston Medical Library.

Dr. George W. Crie, Lakeside Clinic, Cleveland, Ohio. Title to be announced later.

February 29—Surgical Section. Subject to be announced later.

March 28—Medical Section. "The Use and Misuse of Vaccines." Dr. Hans Zinsser, Dr. Francis M. Rackemann, Dr. Charles H. Lawrence.

April 25—Annual meeting. Election of officers. Paper of the evening to be announced later.

The medical profession is cordially invited to attend these meetings.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEW

A Text Book of Physiology for Medical Students and Physicians. W. H. HOWELL. Tenth Edition, 1927. Saunders & Company, Philadelphia.

Howell's "Text Book of Physiology" needs no introduction to the medical profession, to whom a new, tenth edition is offered. Since its first appearance in 1905 it has regularly been revised and brought abreast of the times every two or three years by Professor Howell, and the present issue maintains the sequence, the last edition having appeared in 1924.

Teachers and students alike are indebted to the author for the able way in which he has long kept his subject matter dynamic. This task, always onerous, has become vastly more difficult decade by decade as science ramifies and workers increase. Even one so conversant with physiology as Professor Howell is finds it difficult to the verge of impossibility to ride the flood and, as he frankly states in his preface, much of his material has been culled from summaries and reviews. The inevitable result is a certain unevenness of treatment from one subject to another, not a disturbance of coherence but one of emphasis. The pearls are well strung but of unequal quality. It seems probable that the future will necessitate the "collaborated" text book, though only experience will show how much of the unity will be lost in securing first-hand treatment of all departments.

The essential facts are presented simply and clearly. Moot points are largely omitted, or if of sufficient importance, the pros and cons are given. The facts are, as indicated, quite well up-to-date on the whole, though here and there important recent work has been overlooked. To mention only one example, the series of findings by Adrian and his collaborators on the conditions of activity of and type of nerve impulses initiated by end organs of the various special senses is conspicuous by its absence. The treatment in general tends rather to be descriptive than analytical, but this is almost certain to result when a great mass of material is condensed and simplified—the established facts remain, their embryology must shrink or vanish.

Written for the practical physician, as this book is, it is difficult to understand the proportion of space allotted to various subjects. The sections on muscle and nerve, the central nervous system, and the special senses occupy four hundred pages against six hundred for all the others. More strikingly, sixty-two pages are devoted to muscle and its activity, and only twenty-nine to the entire endocrine system; although for their interest and importance to the clinician these figures should surely be reversed.

Despite these various criticisms, the tenth edition of Howell's Physiology is a worthy offspring of its forebears and deserves a welcome by present and future physicians.